UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

Mark One

[X] Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934

For the quarterly period ended June 30, 2001 or

[ ] Transition Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934

For the Transition Period From ___ to ___. Commission file number 0-20720

LIGAND PHARMACEUTICALS INCORPORATED

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiciton of Incorporation or Organization)

77-0160744
(I. R. S. Employer Identification No.)

10275 Science Center Drive San Diego, CA
(Address of Principal Executive Offices)

92121-1117
(Zip Code)

Registrant's Telephone Number, Including Area Code: (858) 550-7500

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ]

As of July 31, 2001, the registrant had 59,708,429 shares of common stock outstanding.

LIGAND PHARMACEUTICALS INCORPORATED
QUARTERLY REPORT

FORM 10-Q

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*No information provided due to inapplicability of item.

PART I. FINANCIAL INFORMATION
ITEM 1. FINANCIAL STATEMENTS

LIGAND PHARMACEUTICALS INCORPORATED
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

ASSETS

	June 30, 2001	December 31, 2000
	(Unaudited)	
Current assets:		
Cash and cash equivalents	$ 28,600	$ 9,224
Short-term investments	16,959	14,439
Funds receivable from Elan	--	10,000
Accounts receivable, net	5,163	2,824
Inventories	4,519	5,651
Other current assets	2,340	2,511
Total current assets	57,581	44,649
Restricted investments	2,733	1,434
Property and equipment, net	10,439	10,972
Acquired technology, net	39,402	40,924
Other assets	14,545	15,443
	$ 124,700	$ 113,422

LIABILITIES AND STOCKHOLDERS' DEFICIT

Current liabilities:		
Accounts payable	$ 4,111	$ 3,827
Accrued liabilities	9,110	12,675
Current portion of deferred revenue	9,545	8,435
Current portion of equipment financing obligations	2,689	3,478
Total current liabilities	25,455	28,415
Long-term portion of deferred revenue	7,016	5,727
Long-term portion of equipment financing obligations	3,705	4,788
Convertible subordinated debentures	45,988	44,651
Accrued acquisition obligation	2,700	2,700
Convertible note	2,500	2,500
Zero coupon convertible senior notes	82,964	79,766
Total liabilities	170,328	168,547
Commitments (Note 6)		
Stockholders' deficit:		
Convertible preferred stock, $0.001 par value; 5,000,000 shares authorized; none issued	--	--
Common stock, $0.001 par value; 130,000,000 shares authorized; 59,576,830 shares and 56,823,716 shares issued at June 30, 2001 and December 31, 2000, respectively	60	57
Additional paid-in capital	521,466	490,484
Deferred warrant expense	(1,384)	(2,076)
Accumulated other comprehensive income	62	46
Accumulated deficit	(564,921)	(542,725)
	(44,717)	(54,214)
Treasury stock, at cost; 73,842 shares	(911)	(911)
Total stockholders' deficit	(45,628)	(55,125)

$ 124,700	$ 113,422

See accompaning notes.

LIGAND PHARMACEUTICALS INCORPORATED
CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)
(in thousands, except per share data)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2001	2000	2001	2000
		(As restated- see note 1)		(As restated- see note 1)
Revenues:				
Product sales	$ 10,002	$ 4,893	$ 18,609	$ 9,756
Collaborative research and development and other revenues	7,487	4,977	15,915	10,930
Total revenues	17,489	9,870	34,524	20,686
Operating costs and expenses:				
Cost of products sold	3,077	2,010	5,916	4,090
Research and development	13,191	12,766	25,596	25,264
Selling, general and administrative	8,886	9,572	19,043	17,364
Total operating costs and expenses	25,154	24,348	50,555	46,718
Loss from operations	(7,665)	(14,478)	(16,031)	(26,032)
Other income (expense):				
Interest income	551	686	1,282	1,427
Interest expense	(3,449)	(3,204)	(6,894)	(6,664)
Debt conversion expense	--	--	--	(2,025)
Other, net	(52)	(364)	(553)	126
Total other income (expense)	(2,950)	(2,882)	(6,165)	(7,136)
Loss before cumulative effect of a change in accounting principle	(10,615)	(17,360)	(22,196)	(33,168)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition	--	--	--	(13,099)
Net loss	$ (10,615)	$(17,360)	$(22,196)	$(46,267)
Basic and diluted per share amounts:				
Loss before cumulative effect of a change in accounting principle	$ (0.18)	$ (0.31)	$ (0.38)	$ (0.61)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition	--	--	--	(0.24)
Net loss	$ (0.18)	$ (0.31)	$ (0.38)	$ (0.85)
Weighted average number of common shares	59,380	55,600	59,119	54,701

See accompaning notes.

LIGAND PHARMACEUTICALS INCORPORATED
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(in thousands)

	Six Months Ended June 30,	
	2001	2000
		(As restated- see note 1)
OPERATING ACTIVITIES		
Net loss	$ (22,196)	$ (46,267)
Adjustments to reconcile net loss to net cash used in operating activities:		
Accretion of debt discount and interest	4,536	4,191
Depreciation and amortization of property and equipment	1,873	2,044
Equity in loss of affiliate	620	807
Amortization of acquired technology	1,659	1,659
Debt conversion expense	--	2,025
Other	947	(167)
Changes in operating assets and liabilities net of effects from sale of manufacturing assets:		
Accounts receivable	(2,339)	(503)
Inventories	1,132	276
Other current assets	171	715
Accounts payable and accrued liabilities	1,719	(1,375)
Deferred revenue	2,399	14,917
Net cash used in operating activities	(9,479)	(21,678)
INVESTING ACTIVITIES		
Purchases of short-term investments	(10,739)	(10,330)
Proceeds from sale of short-term investments	8,276	4,301
Purchases of property and equipment	(1,340)	(855)
Payments on accrued acquisition obligation	--	(200)
Decrease in other assets	143	20
Net proceeds from sale of manufacturing assets	--	9,676
Proceeds from sale of investment security	--	1,119
Net cash provided by (used in) investing activities	(3,660)	3,731
FINANCING ACTIVITIES		
Principal payments on equipment financing obligations	(2,244)	(2,016)
Proceeds from equipment financing arrangements	372	1,078
(Increase)/decrease in restricted investments	(1,299)	287
Net proceeds from issuance of zero coupon convertible senior notes	10,000	--
Net proceeds from issuance of common stock	25,686	11,852
Net cash provided by financing activities	32,515	11,201
Net increase/(decrease) in cash and cash equivalents	19,376	(6,746)
Cash and cash equivalents at beginning of period	9,224	29,903
Cash and cash equivalents at end of period	$ 28,600	$ 23,157
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Interest paid	$ 2,341	$ 2,424
SUPPLEMENTAL SCHEDULE OF NON-CASH INVESTING AND FINANCING ACTIVITIES		
Conversion of zero coupon convertible senior notes to common stock	$ --	$ 21,022

Issuance of common stock for acquired technology	5,000	4,000
Issuance of common stock for debt conversion incentive	--	2,025
Accrual of ONTAK obligation for acquired technology	--	5,000

See accompaning notes.

1. Basis of Presentation

The consolidated financial statements of Ligand Pharmaceuticals Incorporated ("Ligand" or the "Company") for the three and six months ended June 30, 2001 and 2000 are unaudited. These financial statements reflect all adjustments, consisting of only normal recurring adjustments which, in the opinion of management, are necessary to fairly present the consolidated financial position as of June 30, 2001 and the consolidated results of operations for the three and six months ended June 30, 2001 and 2000. The results of operations for the period ended June 30, 2001 are not necessarily indicative of the results to be expected for the year ending December 31, 2001. For more complete financial information, these financial statements, and the notes thereto, should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2000 included in the Company's Annual Report on Form 10-K and the unaudited consolidated financial statements for the three months ended March 31, 2001 included in the Company's Quarterly Report on Form 10-Q filed with the SEC.

Principles of Consolidation. The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries.

Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the financial statements and disclosures made in the accompanying notes to the consolidated financial statements. Actual results could differ from those estimates.

Revenue Recognition. In December 1999, the Securities and Exchange Commission issued Staff Accounting Bulletin ("SAB") No. 101, *Revenue Recognition in Financial Statements*. SAB No. 101 provides guidance in applying accounting principles generally accepted in the United States to revenue recognition in financial statements, including the recognition of non-refundable up-front fees received in conjunction with contractual arrangements that have multiple performance elements and require continuing involvement. SAB No. 101 requires that such fees be recognized as products are delivered or services are performed that represent the culmination of a separate earnings process.

The Company received non-refundable up-front fees of $18.8 million in 1997, $2.3 million in 1999, and $4.3 million in 2000. The Company initially recognized those payments as revenue upon receipt, as the fees were non-refundable and the Company had transferred technology or product rights at contract inception or incurred costs in excess of the up-front fees prior to initiation of each arrangement. However, under the provisions of SAB No. 101, non-refundable up-front fees must be deferred upon receipt and recognized as products are delivered or services are performed during the term of the arrangement. The Company implemented SAB No. 101 in the fourth quarter of 2000 as a change in accounting principle, retroactive to January 1, 2000, by deferring and recognizing these up-front payments over the term designated in the arrangement. The cumulative effect of this change to December 31, 1999, which was recorded in 2000, was $13.1 million or $0.24 per share. However, the effect on the six and three months ended June 30, 2000 and March 31, 2000 reduced revenue and increased loss before cumulative effect of change in accounting principle by $901,000 or $0.01 per share and $853,000 or $0.02 per share, respectively, compared to the results previously reported for the prior year quarters which have been restated accordingly.

New Accounting Pronouncements. In June 2001, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards ("SFAS") No. 141, "Business Combinations". SFAS No. 141 requires the use of the purchase method of accounting for all business combinations initiated after June 30, 2001 and eliminates the pooling-of-interests method. The Company does not believe that the adoption of SFAS 141 will have a significant impact on its financial statements.

In June 2001, the FASB issued SFAS No. 142, "Goodwill and Other Intangible Assets". SFAS No. 142 requires that goodwill and other intangible assets with indefinite lives no longer be amortized, but instead tested for impairment at least annually. In addition, the standard includes provisions for the reclassification of certain existing intangibles as goodwill and reassessment of the useful lives of existing recognized intangibles. SFAS 142 is effective for fiscal years beginning after December 31, 2001. The Company has not determined the impact, if any, that this statement will have on its financial statements.

Net Loss Per Share. Net loss per share is computed using the weighted average number of common shares outstanding. Basic and diluted net loss per share amounts are equivalent for the periods presented as the inclusion of common stock equivalents in the number of shares used for the diluted computation would be anti-dilutive.

Reclassification. Certain prior year amounts have been reclassified to conform to the current year presentation.

Inventories. Inventories are stated at the lower of cost or market. Cost is determined using the first-in-first-out method. Inventories consist of the following ($,000):

	June 30, 2001	December 31, 2000
Raw materials	$ 493	$ 498
Work-in-process	2,563	4,276
Finished goods	1,463	877
	$ 4,519	$ 5,651

Other Assets. Other assets consist of the following ($,000):

	June 30, 2001	December 31, 2000
Technology license	$ 4,000	$ 4,000
Prepaid royalty buyout, net	3,536	3,672
Deferred rent	3,318	3,373
Investment in X-Ceptor	2,758	3,378
Other	933	1,020
	$ 14,545	$ 15,443

Accrued Liabilities. Accrued liabilities consist of the following ($,000):

	June 30, 2001	December 31, 2000
Royalties	$ 2,688	$ 1,122
Compensation	2,496	2,412
Interest	1,971	1,985
ONTAK obligation (Note 4)	--	5,000
Other	1,955	2,156
	$ 9,110	$ 12,675

Comprehensive Loss. Comprehensive loss represents net loss adjusted for the change during the periods presented in unrealized gains and losses on available-for-sale securities less reclassification adjustments for realized gains or losses included in net loss, as well as foreign currency translation adjustments. The accumulated unrealized gains or losses are reported as accumulated other comprehensive loss as a separate component of stockholders' deficit. Comprehensive loss for the three and six month periods ended June 30, 2001 and 2000 is as follows ($,000):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2001	2000	2001	2000
		(As restated- see note 1)		(As restated- see note 1)
Comprehensive loss	$(10,634)	$(17,315)	$(22,180)	$(46,213)

2. Zero Coupon Convertible Senior Notes

On December 29, 2000, the Company issued the final $10 million of zero coupon convertible senior notes to an entity affiliated with Elan Corporation, plc ("Elan") provided for under a September 1998 agreement, as amended. These notes are convertible into common stock at $14.16 per share. The proceeds were received on January 2, 2001.

3. Distribution Agreement

In February 2001, the Company and Elan entered into a distribution agreement providing for the distribution of certain of the Company's products in various European and other international territories for a term of 10 years. The Company received a payment at contract inception and additional payments related to subsequent product marketing authorization submission and approval. Additional payments may be received as other product registrations are submitted and approved in specified territories.

4. Arrangement with Lilly

In connection with an agreement between the Company's wholly owned subsidiary, Seragen, Inc. ("Seragen") and Eli Lilly and Company ("Lilly") under which Lilly assigned to Seragen its sales and marketing rights to ONTAK, Lilly received a $5 million milestone payment from the Company in March 2001 following the achievement of cumulative net sales of ONTAK reaching $20 million in October 2000. The Company issued 412,504 shares of its common stock to Lilly as payment for this $5 million milestone.

5. Research and Development Collaborations

In June 2001, the Company and TAP Pharmaceutical Products Inc. ("TAP") entered into a research and collaboration agreement to focus on the discovery and development of selective androgen receptor modulators ("SARMs"). SARMs contribute to the prevention and treatment of certain diseases, including hypogonadism, male and female sexual dysfunction, male and female osteoporosis, frailty, and male hormone replacement therapy.

Under the terms of the collaboration, Ligand will receive funding during the research phase of the agreement and potentially milestone and royalty payments if the collaboration is successful. TAP was also granted exclusive worldwide rights to manufacture and sell any products resulting from the collaboration in TAP's field. During the quarter, the Company received $3.5 million upon the delivery of a Ligand manufactured drug substance (LGD2226) to be further developed by TAP. The $3.5 million payment will be recognized as revenue over the initial collaboration period.

In June 2001, Bristol-Myers Squibb informed Ligand that it was terminating its mineralocorticoid receptor research and development collaboration with the Company. Under the terms of the agreement, Ligand will receive $1.1 million in termination related payments.

6. Commitments

In November 1998, the Company and Elan entered into a Development, License and Supply Agreement related to Elan's product Morphelan™. For the rights to Morphelan™ the Company paid Elan certain license fees in 1998 and milestone payments due upon the occurrence of certain events in 1999 and 2000. Elan could receive up to $5 million in cash, or subject to certain conditions, in the Company's common stock or notes upon approval of Morphelan for marketing by the FDA. Elan submitted a NDA for Morphelan to the FDA in May 2000. The Company is also committed to spend not less than $7 million through May 2003 to undertake additional clinical activities related to the commercialization of Morphelan™. In the event the Company does not spend this amount, any shortfall would be paid to Elan.

7. Stockholders' Equity

In January 2001, the Company raised net proceeds of approximately $22.4 million in a private placement of 2 million shares of its common stock.

PART I. FINANCIAL INFORMATION
ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This quarterly report may contain predictions, estimates and other forward-looking statements that involve a number of risks and uncertainties, including those discussed at “Risks and Uncertainties” below. This outlook represents our current judgment on the future direction of our business. Such risks and uncertainties could cause actual results to differ materially from any future performance suggested below. We undertake no obligation to release publicly the results of any revisions to these forward-looking statements to reflect events or circumstances arising after the date of this quarterly report.

Panretin® and Targretin® are registered trademarks of Ligand, and ONTAK® is a registered trademark of Seragen, Inc., our wholly owned subsidiary.

Overview

We develop and market drugs that address critical unmet medical needs of patients in the areas of cancer, men’s and women’s health and skin diseases, as well as osteoporosis, metabolic, cardiovascular and inflammatory diseases. Our drug discovery and development programs are based on our proprietary gene transcription technology, primarily related to Intracellular Receptors, also known as IRs, and Signal Transducers and Activators of Transcription, also known as STATs.

In 1999, we received marketing approval in the United States for Panretin gel, for the treatment of Kaposi's sarcoma in AIDS patients, ONTAK, for the treatment of patients with persistent or recurrent cutaneous T-cell lymphoma or CTCL, and Targretin capsules, for the treatment of CTCL in patients who are refractory to at least one prior systemic therapy. In June 2000, Targretin gel was granted marketing approval in the United States for the treatment of patients with early stage CTCL. In addition, in May 2000, our strategic partner Elan submitted a new drug application ("NDA") for its product Morphelan for pain management in cancer and HIV patients. The FDA has issued an approvable letter for the NDA for Morphelan and Elan has submitted a response to the FDA's questions in the letter. We have the exclusive marketing rights to Morphelan in the United States and Canada. In Europe, we were granted a marketing authorization for Panretin gel in October 2000 and for Targretin capsules in March 2001, and have a marketing authorization application under review for Targretin gel. We expect to launch Panretin gel and Targretin capsules in Europe in 2001 after pricing has been approved.

We are also currently involved in the research phase of research and development collaborations with Eli Lilly and Company, GlaxoSmithKline, Organon Company and TAP Pharmaceutical Products Inc. (TAP). Collaborations in the development phase are being pursued by American Home Products, Abbott Laboratories, Glaxo-Wellcome plc, and Allergan, Inc. We receive funding during the research phase of the arrangements and milestone and royalty payments as products are developed and marketed by our corporate partners. In addition, in connection with some of these collaborations, we received non-refundable up-front payments.

We have been unprofitable since our inception. We expect to incur substantial additional operating losses until the commercialization of our products generates sufficient revenues to cover our expenses. We expect that our operating results will fluctuate from quarter to quarter as a result of differences in the timing of expenses incurred and revenues earned from product sales and collaborative research and development arrangements. Some of these fluctuations may be significant.

Results of Operations

Three Months Ended June 30, 2001 compared to Three Months Ended June 30, 2000

Total revenues for the second quarter ended June 30, 2001 were $17.5 million, an increase of $7.6 million or 77% over the same period last year. Net loss for the second quarter of 2001 was $10.6 million or $.18 per share, a decrease of $6.8 million compared to net loss of $17.4 million or $.31 per share for the prior year period. Results for 2000 reflect the implementation of SAB No. 101 effective January 1, 2000. For additional details, see note 1 of the notes to consolidated financial statements.

Product sales for the second quarter of 2001 were $10.0 million compared to $4.9 million for the second quarter of 2000 driven by a 175% increase in sales of Targretin capsules from $1.2 million in 2000 to $3.3 million in 2001 and a 61% increase in sales of ONTAK to $5.0 million in 2001. Additionally, sales of Targretin gel and Panretin gel amounted to $1.7 million in 2001 compared to $0.6 million in 2000. Targretin gel received approval for marketing in the U.S. in June 2000.

Sales of Targretin capsules and ONTAK continue to benefit from a fully dedicated oncology sales force. Products sold for use in post-marketing clinical trials, price increases and the success of the dermatology sales force put in place in the first quarter have also contributed to the increase in 2001 sales.

Collaborative research and development and other revenues were $7.5 million for the three months ended June 30, 2001, an increase of $2.5 million, or 50%, over the prior year period. In June 2001, Bristol-Myers Squibb informed us that they were terminating the mineralocorticoid receptor research and collaboration agreement. Revenue for the second quarter of 2001 includes $1.0 million of previously deferred up-front fees and $1.1 million in payments due from Bristol-Myers Squibb in connection with the termination of the research and collaboration agreement.

Cost of products sold increased from $2.0 million in 2000 to $3.1 million in 2001 in connection with the growth in product sales.

Research and development expenses of $13.2 million for the quarter ended June 30, 2001 compare to $12.8 million for the prior year quarter reflecting increased spending in studies related to the use of our products in potential new indications, partially offset by reduced registration activities.

Selling, general and administrative expenses decreased 7% from $9.6 million in the second quarter of 2000 to $8.9 million in the second quarter of 2001. The decrease reflects significant advertising and promotion expenses in the prior year quarter associated with the launch of Targretin capsules in early 2000, partially offset by higher costs associated with an increased sales force and post-marketing clinical studies.

We have federal, state, and foreign income tax net operating loss carryforwards and federal and state research tax credit carryforwards which are available within the limitation set forth in Internal Revenue Code sections 382 and 383.

Six Months Ended June 30, 2001 compared to Six Months Ended June 30, 2000

Total revenues for the six months ended June 30, 2001 were $34.5 million, an increase of $13.8 million or 67% from the same period in 2000. Net loss for the first half of 2001 was $22.2 million or $.38 per share compared to a net loss of $46.3 million or $.85 per share in 2000 including the cumulative effect of the change in accounting principle of $13.1 million related to the 2000 implementation of SAB 101. Excluding the impact of the cumulative effect of the change, the net loss for 2001 decreased $11.0 million compared to 2000 net loss of $33.2 million or $.61 per share. For additional details, see note 1 of the notes to consolidated financial statements.

Product sales for the first half of 2001 were $18.6 million compared to $9.8 million in 2000. Sales of Targretin capsules increased from $2.0 million in 2000 to $5.7 million in 2001 while sales of ONTAK increased 44% to $9.8 million. Sales of Targretin gel and Panretin gel increased $2.4 million from $.7 million in 2000 to $3.1 million in 2001.

Collaborative research and development and other revenues increased from $10.9 million in 2000 to $15.9 million in 2001. The increase is due to higher 2001 milestones of $3.8 million compared to $1 million in 2000, and $1.0 million of revenue recognized as previously deferred up-front fees from Bristol-Myers Squibb and $1.1 million in payments due in connection with the June 2001 termination of the Bristol-Myers Squibb research and collaboration agreement.

Cost of products sold increased $1.8 million from $4.1 million in 2000 to $5.9 million in 2001. This increase is in connection with the growth in product sales.

Research and development expenses increased from $25.3 million in 2000 to $25.6 million in 2001 reflecting increased spending in studies related to the use of our products in potential new indications, partially offset by reduced registration activities.

Selling, general and administrative expenses were $19.0 million in 2001 compared to $17.4 million in 2000, an increase of 9%. The increase is primarily due to costs associated with the implementation of fully dedicated oncology and dermatology sales forces in the first quarter of 2001, including the addition of 10 sales representatives, and post marketing clinical trials, partially offset by higher promotion and advertising expenses incurred in 2000 in connection with the launch of Targretin capsules.

Other expense, net decreased 13% from $7.1 million in 2000 to $6.2 million in 2001. The decrease is due to debt conversion expenses of $2 million incurred in 2000 related to the conversion of $20 million convertible notes held by Elan, partially offset by gains on the sale of manufacturing assets and investment securities in 2000.

Liquidity and Capital Resources

We have financed our operations through private and public offerings of our equity securities, collaborative research and development and other revenues, issuance of convertible notes, capital and operating lease transactions, equipment financing arrangements, product sales and investment income.

Working capital was $32.1 million at June 30, 2001 compared to $16.2 million at December 31, 2000. Cash and cash equivalents, short-term investments, restricted investments and funds receivable from Elan totaled $48.3 million at June 30, 2001 compared to $35.1 million at December 31, 2000. We primarily invest our cash in United States government and investment grade corporate debt securities.

Significant cash inflows during the first half of 2001 include proceeds of $22.4 million of net cash received in a private placement of 2 million shares of our common stock and $10 million from the proceeds on the final note issued to Elan. Significant cash outflows include $9.5 million of net cash used to finance operating activities in 2001 compared to $21.7 million in 2000.

Our subsidiary, Glycomed, is obligated to make payments under convertible subordinated debentures in the total principal amount of $50 million. The debentures pay interest semi-annually at a rate of 7 ½% per annum, are due in 2003 and convertible into our common stock at $26.52 per share. In addition, at June 30, 2001, we had outstanding a $2.5 million convertible note to GlaxoSmithKline due in 2002 with interest at prime and convertible into our common stock at $13.56 per share as well as $83.0 million in zero coupon convertible senior notes to Elan, due 2008 with an 8% per annum yield to maturity and convertible into our common stock at approximately $14 per share.

Certain of our property and equipment is pledged as collateral under various equipment financing arrangements. As of June 30, 2001, $6.4 million was outstanding under such arrangements with $2.7 million classified as current. Our equipment financing arrangements have terms of four to seven years with interest ranging from 6.75% to 11.02% per annum. We lease our office and research facilities under operating lease arrangements with varying terms through August 2015.

We may be required to make a milestone payment of $5 million to Elan and are required to spend $7 million through May 2003 for clinical expenditures under the Morphelan license agreement. For additional details, please see note 6 of the notes to consolidated financial statements.

We believe our available cash, cash equivalents, short-term investments and existing sources of funding will be adequate to satisfy our anticipated operating and capital requirements through at least the next 12 months. Our future operating and capital requirements will depend on many factors, including: the effectiveness of our commercialization activities; the pace of scientific progress in our research and development programs; the magnitude of these programs; the scope and results of preclinical testing and clinical trials; the time and costs involved in obtaining regulatory approvals; the costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims; competing technological and market developments; the ability to establish additional collaborations or changes in existing collaborations; and the cost of manufacturing.

Financial Condition

June 30, 2001 compared to December 31, 2000

Funds receivable from Elan decreased by $10 million reflecting the receipt of cash proceeds in January 2001 on the final note issued by Elan.

Accrued liabilities decreased by $3.6 million reflecting the issuance of our common stock in satisfaction of a $5 million Lilly milestone obligation for ONTAK discussed in note 4 of the notes to consolidated financial statements.

Stockholders' deficit decreased by $9.5 million due primarily to the proceeds of the private placement described in note 7 of the notes to consolidated financial statements, the issuance of common stock to Lilly described in note 4 of the notes to consolidated financial statements, and the issuance of common stock upon the exercise of employee stock options, offset in part by the 2001 net loss of $22.2 million.

Recent Accounting Pronouncements

In June 2001, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards ("SFAS") No. 141, “Business Combinations”. SFAS No. 141 requires the use of the purchase method of accounting for all business combinations initiated after June 30, 2001 and eliminates the pooling-of-interests method. The Company does not believe that the adoption of SFAS 141 will have a significant impact on its financial statements.

In June 2001, the FASB issued SFAS No. 142, “Goodwill and Other Intangible Assets”. SFAS No. 142 requires that goodwill and other intangible assets with indefinite lives no longer be amortized, but instead tested for impairment at least annually. In addition, the standard includes provisions for the reclassification of certain existing intangibles as goodwill and reassessment of the useful lives of existing recognized intangibles. SFAS 142 is effective for fiscal years beginning after December 31, 2001. The Company has not determined the impact, if any, that this statement will have on its financial statements.

Risks and Uncertainties

The following is a summary description of some of the many risks we face in our business. You should carefully review these risks in evaluating our business, including the businesses of our subsidiaries. You should also consider the other information described in this report.

Our product development and commercialization involves a number of uncertainties and we may never generate sufficient revenues from the sale of products to become profitable.

We were founded in 1987. We have incurred significant losses since our inception. At June 30, 2001, our accumulated deficit was $564.9 million. To date, we have received the majority of our revenues from our collaborative arrangements and only began receiving revenues from the sale of pharmaceutical products in 1999. To become profitable, we must successfully develop, clinically test, market and sell our products. Even if we achieve profitability, we cannot predict the level of that profitability or whether we will be able to sustain profitability. We expect that our operating results will fluctuate from period to period as a result of differences in when we incur expenses and receive revenues from product sales, collaborative arrangements and other sources. Some of these fluctuations may be significant.

Most of our products in development will require extensive additional development, including preclinical testing and human studies, as well as regulatory approvals, before we can market them. We do not expect that any products resulting from our product development efforts or the efforts of our collaborative partners, other than those for which marketing approval has already been received, will be available for sale until the first half of the 2002 calendar year at the earliest, if at all. There are many reasons that we or our collaborative partners may fail in our efforts to develop our other potential products, including the possibility that:

- preclinical testing or human studies may show that our potential products are ineffective or cause harmful side effects,
- the products may fail to receive necessary regulatory approvals from the FDA or foreign authorities in a timely manner or at all,
- the products, if approved, may not be produced in commercial quantities or at reasonable costs,
- the products once approved, may not achieve commercial acceptance, or
- the proprietary rights of other parties may prevent us or our partners from marketing the products.

We are building marketing and sales capabilities in the united states and europe which is an expensive and time-consuming process.

Developing the sales force to market and sell products is a difficult, expensive and time-consuming process. We have developed a U.S. sales force of approximately 50 people, some of which are contracted from a third party, and we rely on third parties to distribute our products. The distributor is responsible for providing many marketing support services, including customer service, order entry, shipping and billing, and customer reimbursement assistance. In Europe, we will rely initially on other companies to distribute and market our products. We have entered into agreements for the marketing and distribution of our products in territories such as the United Kingdom, Germany, France, Spain, Portugal, Greece, Italy, and Central and South America. We may not be able to continue to expand our sales and marketing capabilities sufficiently to successfully commercialize our products in the territories where they receive marketing approval. To the extent we enter into co-promotion or other licensing arrangements, any revenues we receive will depend on the marketing efforts of others, which may or may not be successful.

Some of our key technologies have not been used to produce marketed products and may not be capable of producing such products.

To date, we have dedicated most of our resources to the research and development of potential drugs based upon our expertise in our IR and STATs technologies. Even though there are marketed drugs that act through IRs, some aspects of our IR technologies have not been used to produce marketed products. In addition, we are not aware of any drugs that have been developed and successfully commercialized that interact directly with STATs. Much remains to be learned about the location and function of IRs and STATs. If we are unable to apply our IR and STAT technologies to the development of our potential products, we will not be successful in developing new products.

Our drug development programs will require substantial additional future capital.

Our drug development programs require substantial additional capital to successfully complete them, arising from costs to:

- conduct research, preclinical testing and human studies,
- establish pilot scale and commercial scale manufacturing processes and facilities, and
- establish and develop quality control, regulatory, marketing, sales and administrative capabilities to support these programs.

Our future operating and capital needs will depend on many factors, including:

- the pace of scientific progress in our research and development programs and the magnitude of these programs,
- the scope and results of preclinical testing and human studies,
- the time and costs involved in obtaining regulatory approvals,
- the time and costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims,
- competing technological and market developments,
- our ability to establish additional collaborations,
- changes in our existing collaborations,
- the cost of manufacturing scale-up, and
- the effectiveness of our commercialization activities.

For example, we are required under the terms of our agreement with Elan, to spend not less than $7 million through May 2003 to undertake additional clinical activities related to the commercialization of Morphelan. In the event we do not spend this amount, any shortfall would have to be paid to Elan. If additional funds are required to support our operations and we are unable to obtain them on terms favorable to us, we may be required to cease or reduce further commercialization of our products, to sell some or all of our technology or assets or to merge with another entity.

Our products must clear significant regulatory hurdles prior to marketing.

Before we obtain the approvals necessary to sell any of our potential products, we must show through preclinical studies and human testing that each product is safe and effective. Our failure to show any product's safety and effectiveness would delay or prevent regulatory approval of the product and could adversely affect our business. The clinical trials process is complex and uncertain. The results of preclinical studies and initial clinical trials may not necessarily predict the results from later large-scale clinical trials. In addition, clinical trials may not demonstrate a product's safety and effectiveness to the satisfaction of the regulatory authorities. A number of companies have suffered significant setbacks in advanced clinical trials or in seeking regulatory approvals, despite promising results in earlier trials. The FDA may also require additional clinical trials after regulatory approvals are received, which could be expensive and time-consuming, and failure to successfully conduct those trials could jeopardize continued commercialization.

The rate at which we complete our clinical trials depends on many factors, including our ability to obtain adequate supplies of the products to be tested and patient enrollment. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites and the eligibility criteria for the trial. Delays in patient enrollment may result in increased costs and longer development times. In addition, our collaborative partners have rights to control product development and clinical programs for products developed under the collaborations. As a result,

these collaborators may conduct these programs more slowly or in a different manner than we had expected. Even if clinical trials are completed, we or our collaborative partners still may not apply for FDA approval in a timely manner or the FDA still may not grant approval.

We may not be able to pay amounts due on our outstanding indebtedness when due which would cause defaults under these arrangements.

We and our subsidiaries may not have sufficient funds to make required payments due under existing debt. If we or our subsidiaries do not have adequate funds, we will be forced to refinance the existing debt and may not be successful in doing so. Our subsidiary, Glycomed, is obligated to make payments under convertible subordinated debentures in the total principal amount of $50 million. The debentures incur interest semi-annually at a rate of 7 ½% per annum, are due in 2003 and convertible into our common stock at $26.52 per share. In addition, at June 30, 2001, we had outstanding a $2.5 million convertible note to GlaxoSmithKline due in 2002 with interest at prime and convertible into our common stock at $13.56 per share. We also had outstanding $83.0 million in zero coupon convertible senior notes to Elan, due 2008 with an 8% per annum yield to maturity and convertible into our common stock at approximately $14 per share. Glycomed's failure to make payments when due under its debentures and Ligand's failure to make payments due under the convertible note to GlaxoSmithKline would cause us to default under the outstanding notes to Elan.

We may require additional money to run our business and may be required to raise this money on terms which are not favorable to our existing stockholders.

We have incurred losses since our inception and do not expect to generate positive cash flow to fund our operations for one or more years. As a result, we may need to complete additional equity or debt financings to fund our operations. Our inability to obtain additional financing could adversely affect our business. Financings may not be available on acceptable terms. In addition, these financings, if completed, still may not meet our capital needs and could result in substantial dilution to our stockholders. For instance, the zero coupon convertible senior notes outstanding to Elan are convertible into common stock at the option of Elan, subject to some limitations, and in January 2001 we issued 2 million shares of our common stock in a private placement. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate one or more of our drug development programs. Alternatively, we may be forced to attempt to continue development by entering into arrangements with collaborative partners or others that require us to relinquish some or all of our rights to technologies or drug candidates that we would not otherwise relinquish.

We face substantial competition.

Some of the drugs that we are developing and marketing will compete with existing treatments. In addition, several companies are developing new drugs that target the same diseases that we are targeting and are taking IR-related and STAT-related approaches to drug development. Many of our existing or potential competitors, particularly large drug companies, have greater financial, technical and human resources than us and may be better equipped to develop, manufacture and market products. Many of these companies also have extensive experience in preclinical testing and human clinical trials, obtaining FDA and other regulatory approvals and manufacturing and marketing pharmaceutical products. In addition, academic institutions, governmental agencies and other public and private research organizations are developing products that may compete with the products we are developing. These institutions are becoming more aware of the commercial value of their findings and are seeking patent protection and licensing arrangements to collect payments for the use of their technologies. These institutions also may market competitive products on their own or through joint ventures and will compete with us in recruiting highly qualified scientific personnel.

Our success will depend on third-party reimbursement and may be impacted by health care reform.

Sales of prescription drugs depend significantly on the availability of reimbursement to the consumer from third party payors, such as government and private insurance plans. These third party payors frequently require drug companies to provide predetermined discounts from list prices, and they are increasingly challenging the prices charged for medical products and services. Our current and potential products may not be considered cost-effective and reimbursement to the consumer may not be available or sufficient to allow us to sell our products on a competitive basis.

In addition, the efforts of governments and third-party payors to contain or reduce the cost of health care will continue to affect the business and financial condition of drug companies such as us. A number of legislative and regulatory proposals to change the health care system have been discussed in recent years. In addition, an increasing emphasis on managed care in the United States has and will continue to increase pressure on drug pricing. We cannot predict whether legislative or regulatory proposals will be adopted or what effect those proposals or managed care efforts may have on our business. The announcement and/or adoption of such proposals or efforts could adversely affect our profit margins and business.

We rely heavily on collaborative relationships and termination of any of these programs could reduce the financial resources available to us.

Our strategy for developing and commercializing many of our potential products, including products aimed at larger markets, includes entering into collaborations with corporate partners, licensors, licensees and others. These collaborations provide us with funding and research and development resources for potential products for the treatment or control of metabolic diseases, hematopoiesis, women's health disorders, inflammation, cardiovascular disease, cancer and skin disease, and osteoporosis. These agreements also give our collaborative partners significant discretion when deciding whether or not to pursue any development program. For example, in June 2001, Bristol-Myers Squibb informed us that they were terminating the mineralocorticoid receptor research and collaboration agreement. Our collaborations may not continue or be successful.

In addition, our collaborators may develop drugs, either alone or with others, that compete with the types of drugs they currently are developing with us. This would result in less support and increased competition for our programs. If products are approved for marketing under our collaborative programs, any revenues we receive will depend on the manufacturing, marketing and sales efforts of our collaborators, who generally retain commercialization rights under the collaborative agreements. Our current collaborators also generally have the right to terminate their collaborations under specified circumstances. If any of our collaborative partners breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully, our product development under these agreements will be delayed or terminated.

We may have disputes in the future with our collaborators, including disputes concerning which of us owns the rights to any technology developed. For instance, we were involved in litigation with Pfizer, which we settled in April 1996, concerning our right to milestones and royalties based on the development and commercialization of droloxifene. These and other possible disagreements between us and our collaborators could delay our ability and the ability of our collaborators to achieve milestones or our receipt of other payments. In addition, any disagreements could delay, interrupt or terminate the collaborative research, development and commercialization of certain potential products, or could result in litigation or arbitration. The occurrence of any of these problems could be time-consuming and expensive and could adversely affect our business.

Our success depends on our ability to obtain and maintain our patents and other proprietary rights.

Our success will depend on our ability and the ability of our licensors to obtain and maintain patents and proprietary rights for our potential products and to avoid infringing the proprietary rights of others, both in the United States and in foreign countries. Patents may not be issued from any of these applications currently on file or, if issued, may not provide sufficient protection. In addition, disputes with licensors under our license agreements may arise which could result in additional financial liability or loss of important technology and potential products.

Our patent position, like that of many pharmaceutical companies, is uncertain and involves complex legal and technical questions for which important legal principles are unresolved. We may not develop or obtain rights to products or processes that are patentable. Even if we do obtain patents, they may not adequately protect the technology we own or have licensed. In addition, others may challenge, seek to invalidate, infringe or circumvent any patents we own or license, and rights we receive under those patents may not provide competitive advantages to us. Further, the manufacture, use or sale of our products may infringe the patent rights of others.

Several drug companies and research and academic institutions have developed technologies, filed patent applications or received patents for technologies that may be related to our business. Others have filed patent applications and received patents that conflict with patents or patent applications we have licensed for our use, either by claiming the same methods or compounds or by claiming methods or compounds that could dominate those licensed to us. In addition, we may not be aware of all patents or patent applications that may impact our ability to make, use or sell any of our potential products. For example, United States patent applications may be kept confidential while pending in the Patent and Trademark Office, and patent applications filed in foreign countries are often first published six months or more after filing. Any conflicts resulting from the patent rights of others could significantly reduce the coverage of our patents and limit our ability to obtain meaningful patent protection. If other companies obtain patents with conflicting claims, we may be required to obtain licenses to those patents or to develop or obtain alternative technology. We may not be able to obtain any such license on acceptable terms or at all. Any failure to obtain such licenses could delay or prevent us from pursuing the development or commercialization of our potential products.

We have had and will continue to have discussions with our current and potential collaborators regarding the scope and validity of our patent and other proprietary rights. If a collaborator or other party successfully establishes that our patent rights are invalid, we may not be able to continue our existing collaborations beyond their expiration. Any determination that our patent rights are invalid also could encourage our collaborators to terminate their agreements where contractually permitted. Such a determination could also adversely affect our ability to enter into new collaborations.

We may also need to initiate litigation, which could be time-consuming and expensive, to enforce our proprietary rights or to determine the scope and validity of others' rights. If litigation results, a court may find our patents or those of our licensors invalid or may find that we have infringed on a competitor's rights. If any of our competitors have filed patent applications in the United States which claim technology we also have invented, the Patent and Trademark Office may require us to participate in expensive interference proceedings to determine who has the right to a patent for the technology.

We have learned that Hoffmann-La Roche Inc. has received a United States patent and has made patent filings in foreign countries that relate to our Panretin® capsules and gel products. We filed a patent application with an earlier filing date than Hoffmann-La Roche's patent, which we believe is broader than, but overlaps in part with, Hoffmann-La Roche's patent. We currently are investigating the scope and validity of Hoffmann-La Roche's patent to determine its impact upon our products. The Patent and Trademark Office has informed us that the overlapping claims are patentable to us and has initiated a proceeding to determine whether we or Hoffmann-La Roche are entitled to a patent. We may not receive a favorable outcome in the proceeding. In addition, the proceeding may delay the Patent and Trademark Office's decision regarding our earlier application. If we do not prevail, the Hoffmann-La Roche patent might block our use of Panretin®capsules and gel in specified cancers.

We also rely on unpatented trade secrets and know-how to protect and maintain our competitive position. We require our employees, consultants, collaborators and others to sign confidentiality agreements when they begin their relationship with us. These agreements may be breached and we may not have adequate remedies for any breach. In addition, our competitors may independently discover our trade secrets.

We rely on third-party manufacturers to supply our products and thus have little control over our manufacturing resources.

We currently have no manufacturing facilities and we rely on others for clinical or commercial production of our marketed and potential products. To be successful, we will need to manufacture our products, either directly or through others, in commercial quantities, in compliance with regulatory requirements and at acceptable cost. Any extended and unplanned manufacturing shutdowns could be expensive and could result in inventory and product shortages. If we are unable to develop our own facilities or contract with others for manufacturing services, our revenues could be adversely affected. In addition, if we are unable to supply products in development, our ability to conduct preclinical testing and human clinical trials will be adversely affected. This in turn could also delay our submission of products for regulatory approval and our initiation of new development programs. In addition, although other companies have manufactured drugs acting through IRs and STATs on a commercial scale, we may not be able to do so at costs or in quantities to make marketable products.

The manufacturing process also may be susceptible to contamination, which could cause the affected manufacturing facility to close until the contamination is identified and fixed. In addition, problems with equipment failure or operator error also could cause delays in filling our customers' orders.

Our business exposes us to product liability risks or our products may need to be recalled and we may not have sufficient insurance to cover any claims.

Our business exposes us to potential product liability risks. Our products also may need to be recalled to address regulatory issues. A successful product liability claim or series of claims brought against us could result in payment of significant amounts of money and divert management's attention from running the business. Some of the compounds we are investigating may be harmful to humans. For example, retinoids as a class are known to contain compounds which can cause birth defects. We may not be able to maintain our insurance on acceptable terms, or our insurance may not provide adequate protection in the case of a product liability claim. To the extent that product liability insurance, if available, does not cover potential claims, we will be required to self-insure the risks associated with such claims.

We are dependent on our key employees, the loss of whose services could adversely affect us.

We depend on our key scientific and management staff, the loss of whose services could adversely affect our business. Furthermore, we may need to hire new scientific, management and operational personnel. Recruiting and retaining qualified management, operations and scientific personnel is also critical to our success. We may not be able to attract and retain such personnel on acceptable terms given the competition among numerous drug companies, universities and other research institutions for such personnel.

We use hazardous materials which requires us to incur substantial costs to comply with environmental regulations.

In connection with our research and development activities, we handle hazardous materials, chemicals and various radioactive compounds. To properly dispose of these hazardous materials in compliance with environmental regulations, we are required to contract with third parties at substantial cost to us. We cannot completely eliminate the risk of accidental contamination or injury from the handling and disposing of hazardous materials, whether by us or by our third-party contractors. In the event of any accident, we could be held liable for any damages that result, which could be significant.

Our stock price may be adversely affected by volatility in the markets.

The market prices and trading volumes for our securities, and the securities of emerging companies like us, have historically been highly volatile and have experienced significant fluctuations unrelated to operating performance. Future announcements concerning us or our competitors may impact the market price of our common stock. These announcements might include:

- the results of research or development testing of ours or our competitors' products,
- technological innovations related to diseases we are studying,
- new commercial products introduced by our competitors,
- government regulation of our industry,
- receipt of regulatory approvals by competitors,
- our failure to receive regulatory approvals for products under development,
- developments concerning proprietary rights, or
- litigation or public concern about the safety of our products.

Future sales of our common stock may depress our stock price.

Sales of substantial amounts of our common stock in the public market could seriously harm prevailing market prices for our common stock. These sales might make it difficult or impossible for us to sell additional securities when we need to raise capital.

You may not receive a return on your shares other than through the sale of your shares of common stock.

We have not paid any cash dividends on our common stock to date. We intend to retain any earnings to support the expansion of our business and we do not anticipate paying cash dividends in the foreseeable future. Accordingly, other than through a sale of your shares, you will not receive a return on your investment in our common stock.

Our shareholder rights plan and charter documents may prevent transactions that could be beneficial to you.

Our shareholder rights plan and provisions contained in our certificate of incorporation and bylaws may discourage transactions involving an actual or potential change in our ownership, including transactions in which you might otherwise receive a premium for your shares over then-current market prices. These provisions also may limit your ability to approve transactions that you deem to be in your best interests. In addition, our board of directors may issue shares of preferred stock without any further action by you. Such issuances may have the effect of delaying or preventing a change in our ownership.

PART I. FINANCIAL INFORMATION
ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

At June 30, 2001 our investment portfolio includes fixed-income securities of $14.9 million. These securities are subject to interest rate risk and will decline in value if interest rates increase. However, due to the short maturities of holdings in our investment portfolio, an immediate 10% change in interest rates would not have a material impact on our financial condition, results of operations or cash flows. Declines in interest rates over time will, however, reduce our interest income while increases in interest rates over time will increase our interest expense.

We generally conduct business, including sales to foreign customers, in U.S. dollars. As a result we have very limited foreign currency exchange rate risk. The effect of an immediate 10% change in foreign exchange rates would not have a material impact on our financial condition, results of operations or cash flows.

PART II. OTHER INFORMATION
ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Our Annual Meeting of Stockholders was held on May 25, 2001. The following elections and proposals were approved at the Annual Meeting:

	Votes For	Votes Against	Votes Withheld	Votes Abstaining	Broker Nonvote
1.Election of a Board of Directors. The total number of votes cast for, or withheld for each nominee was as follows:					
Henry F. Blissenbach	52,333,215	-- --	1,147,854	-- --	-- --
Alexander D. Cross, Ph.D.	52,719,794	-- --	761,275	-- --	-- --
John Groom	52,340,264	-- --	1,140,805	-- --	-- --
Irving S. Johnson, Ph.D.	52,770,804	-- --	710,265	-- --	-- --
Carl C. Peck, M.D.	52,767,411	-- --	713,658	-- --	-- --
David E. Robinson	51,187,694	-- --	2,293,375	-- --	-- --
Michael A. Rocca	52,726,562	-- --	754,507	-- --	-- --
2.Amendment of the 1992 Stock Option/Stock Issuance Plan to increase the authorized number of shares of common stock available for issuance under such plan from 9,573,457 to 10,323,457.	48,822,607	6,534,586	-- --	123,876	-- --
3.Amendment of the 1992 Employee Stock Purchase Plan to increase the authorized number of shares of common stock available for purchase under such plan from 405,000 to 465,000.	52,675,962	693,232	-- --	111,875	-- --
4.Ratification of the appointment of Deloitte & Touche LLP as the independent auditors for the fiscal year ending December 31, 2001.	53,300,072	135,757	-- --	45,240	-- --

ITEM 6 (A) EXHIBITS

Exhibit 3.1 (1)	Amended and Restated Certificate of Incorporation of the Company (Exhibit 3.2).
Exhibit 3.2 (1)	Bylaws of the Company, as amended (Exhibit 3.3).
Exhibit 3.3 (2)	Amended Certificate of Designation of Rights, Preferences and Privileges of Series A Participating Preferred Stock of Ligand Pharmaceuticals Incorporated.
Exhibit 3.5 (6)	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Company dated June 14, 2000.
Exhibit 4.1 (8)	Specimen stock certificate for shares of Common Stock of the Company.
Exhibit 4.2 (3)	Preferred Shares Rights Agreement, dated as of September 13, 1996, by and between Ligand Pharmaceuticals Incorporated and Wells Fargo Bank, N.A. (Exhibit 10.1)
Exhibit 4.3 (4)	Amendment to Preferred Shares Rights Agreement, dated as of November 9, 1998, between the Company and ChaseMellon Shareholder Services, L.L.C., as Rights Agent (Exhibit 99.1).
Exhibit 4.5 (7)	Indenture, dated as of December 23, 1992 by and between Glycomed Incorporated and Chemical Trust Company of California. (Filed as Exhibit 4.3).
Exhibit 4.6 (5)	First Supplement Indenture, dated as of May 18, 1995 by and among the Company, Glycomed Incorporated and Chemical Trust Company of California. (Filed as Exhibit 10.133).
Exhibit 10.238	Letter Agreement, dated May 17, 2001, between the Company and Gian Aliprandi.
Exhibit 10.239	Research, Development and License Agreement by and between the Company and TAP Pharmaceutical Products Inc. dated June 22, 2001.

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(1) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Registration Statement on Form S-4 (No. 333-58823) filed on July 9, 1998.

(2) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 1999.

(3) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Registration Statement on Form S-3 (No. 333-12603) filed on September 25, 1996, as amended.

(4) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with, the Registration Statement on Form 8-A/A Amendment No. 1 (No. 0-20720) filed on November 10, 1998.

(5) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form S-4 (No. 33-90160) filed on March 9, 1995, as amended.

(6) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the period ended December 31, 2000.

(7) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form S-3 of Glycomed Incorporated (Reg. No. 33-55042) filed on November 25, 1992, as amended.

(8) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Registration Statement on Form S-1 (No. 33-47257) filed on April 16, 1992 as amended.

ITEM 6 (B) REPORTS ON FORM 8-K

No reports on Form 8-K were filed during the quarter ended June 30, 2001.

LIGAND PHARMACEUTICALS INCORPORATED

June 30, 2001

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Ligand Pharmaceuticals Incorporated

Date: August 2, 2001

By: /S/ PAUL V.MAIER
Paul V. Maier
Senior Vice President, Chief Financial Officer

May 17, 2001

Mr. Giambattista Aliprandi
Vice President, Senior Corporate Controller
and Treasurer
LIGAND PHARMACEUTICALS INCORPORATED
10275 Science Center Drive
San Diego, CA 92121

Dear Gian:

The purpose of this letter agreement is to document the terms of the severance package to which you will be entitled should your employment with Ligand Pharmaceuticals Incorporated (the "Company") terminate under certain specified circumstances.

Part One of this letter agreement sets forth certain definitional provisions to be in effect for purposes of determining your benefit entitlements. Part Two specifies the terms and conditions upon which you may become entitled to receive severance benefits in the event your employment with the Company were to be terminated involuntarily whether in connection with certain changes in control of the Company or otherwise. Part Three concludes this agreement with a series of general terms and conditions applicable to your severance benefits.

PART ONE -- DEFINITIONS

DEFINITIONS. For purposes of this letter agreement, including in particular the application of the special benefit limitations of Part Three, the following definitions will be in effect:

AVERAGE COMPENSATION means your average W-2 wages from the Company for the five (5) calendar years completed immediately prior to the calendar year in which the Change in Control is effected. Any W-2 wages for a partial year of employment will be annualized, in accordance with the frequency with which such wages are paid during such partial year, before inclusion within your Average Compensation.

BOARD means the Company's Board of Directors.

CHANGE IN CONTROL means any of the following events:

(i) a merger or consolidation in which the Company is not the surviving entity, except for a transaction the principal purpose of which is to change the state in which the Company is incorporated,

(ii) the sale, transfer or other disposition of all or substantially all of the assets of the Company other than in the ordinary course,

(iii) any reverse merger in which the Company ceases to exist as an independent corporation and becomes the subsidiary of another corporation,

(iv) any Hostile Take-Over,

(v) the acquisition by any person (or related group of persons), whether by tender or exchange offer made directly to the Company's stockholders, private purchases from one or more of the Company's stockholders, open market purchases or any other transaction, of beneficial ownership of securities possessing more than thirty percent (30%) of the total combined voting power of the Company's outstanding securities,

(vi) the acquisition by any person (or related group of persons), whether by tender or exchange offer made directly to the Company's stockholders, private purchases from one or more of the Company's stockholders, open market purchases or any other transaction, of additional

securities of the Company which increase the total holdings of such person (or group) to a level of securities possessing more than fifty percent (50%) of the total combined voting power of the Company's outstanding securities, or

(vii) the acquisition by any person (or related group of persons), whether by tender or exchange offer made directly to the Company's stockholders, private purchases from one or more of the Company's stockholders, open market purchases or any other transaction, of securities of the Company possessing sufficient voting power in the aggregate to elect an absolute majority of the members of the Board (rounded up to the nearest whole number).

CODE means the Internal Revenue Code of 1986, as amended.

COMMON STOCK means the Company's common stock, par value $0.001 per share.

EQUITY INCENTIVE PLANS mean any of the following equity incentive plans of the Company: 1992 Stock Option/Stock Issuance Plan, as amended; Restricted Stock Purchase Plan, as amended; and 1988 Stock Option Plan, as amended.

HEALTH CARE COVERAGE means the continued health care coverage to which you and your eligible dependents may become entitled under this agreement upon the Involuntary Termination of your employment other than Termination for Cause.

HOSTILE TAKE-OVER means either of the following events:

(i) the acquisition by any person (or related group of persons) whether by tender or exchange offer made directly to the Company's stockholders, private purchases from one or more of the Company's stockholders, open market purchases or any other transaction, of beneficial ownership of securities possessing more than thirty percent (30%) of the total combined voting power of the Company's outstanding securities pursuant to a tender offer made directly to the Company's stockholders which the Board does not recommend such stockholders to accept, or

(ii) a change in the composition of the Board over a period of thirty-six (36) consecutive months or less such that a majority of the Board members (rounded up to the next whole number) ceases, by reason of one or more contested elections for Board membership, to be comprised of individuals who either (a) have been Board members continuously since the beginning of such period or (b) have been elected or nominated for election as Board members during such period by at least a majority of the Board members described in clause (a) who were still in office at the time such election or nomination was approved by the Board.

INVOLUNTARY TERMINATION means the termination of your employment with the Company:

(i) involuntarily upon your discharge or dismissal, or

(ii) voluntarily upon your resignation in connection with any of the following changes to the terms and conditions of your employment: (A) a change in your position with the Company which materially reduces your level of responsibility, (B) a greater than ten percent (10%) reduction in your level of compensation (including base salary, fringe benefits and participation in non-discretionary bonus programs under which awards are payable pursuant to objective financial or performance standards) or (C) a

relocation of your principal place of employment by more than fifty (50) miles.

The following guidelines shall determine whether one or more reductions in compensation should be taken into account for purposes of clause (ii)(B):

- Any reduction in compensation which occurs in connection with an across-the-board reduction in the level of compensation payable to the Company's executive officers or senior management shall not constitute grounds for a clause (ii)(B) resignation, unless implemented within eighteen (18) months after a Change in Control.

- In the event of a Hostile Take-Over, the greater than ten percent (10%) standard of clause (ii)(B) shall be reduced to zero percent (0%) so that any reduction in the level of your compensation shall constitute grounds for a clause (ii)(B) resignation.

In no event shall an Involuntary Termination be deemed to occur should your employment terminate by reason of death or permanent disability.

OPTION means any option granted to you under any of the Equity Incentive Plans which is outstanding at the time of your Involuntary Termination or any earlier Change in Control. Your outstanding options are to be divided into two separate categories as follows:

- ACQUISITION-ACCELERATED OPTIONS: any outstanding Option (or installment thereof) which accelerates upon a Change in Control in

accordance with the automatic acceleration provisions of the Equity Incentive Plans.

- SEVERANCE-ACCELERATED OPTIONS: any outstanding Option (or installment thereof) which is not an Acquisition-Accelerated Option but which accelerates upon your Involuntary Termination, whether or not in connection with a Change in Control, as part of your severance benefits under this agreement.

EQUITY PARACHUTE PAYMENT means, with respect to any Option (whether Acquisition-Accelerated or Severance-Accelerated) or unvested Stock Issuance, the portion deemed to be a parachute payment under Code Section 280G and the Treasury Regulations issued thereunder. Such Equity Parachute Payment shall be calculated in accordance with the valuation provisions established under Code Section 280G and the applicable Treasury Regulations and will include an appropriate dollar adjustment to reflect the lapse of your obligation to remain in the Company's employ as a condition to your vesting in the accelerated portion of such Option or Stock Issuance.

OTHER PARACHUTE PAYMENTS mean any payments in the nature of compensation to which you may become entitled under this letter agreement (other than the Equity Parachute Payment) or any other arrangement with the Company, to the extent such payments qualify as parachute payments within the meaning of Code Section 280G(b)(2) and the Treasury Regulations issued thereunder or would so qualify if the aggregate present value of such payments exceeded the amount specified in Code Section 280G(b)(2)(ii).

STOCK ISSUANCE means the issuance of unvested shares of Common Stock under the Company's Restricted Stock Plan or any other Equity Incentive Plan.

TERMINATION FOR CAUSE means an Involuntary Termination of your employment with the Company by reason of your conviction of any felony or other criminal act, your commission of any act of fraud or embezzlement, your unauthorized use or disclosure of confidential information or trade secrets of the Company or its subsidiaries, or any other intentional misconduct on your part which adversely affects the business or affairs of the Company in a material manner.

PART TWO -- INVOLUNTARY TERMINATION BENEFITS

You will be entitled to receive the severance benefits specified below should there occur an Involuntary Termination of your employment during the term of this letter agreement effected in connection with a Change in Control, other than an Involuntary Termination which constitutes a Termination for Cause. However, in the absence of a Hostile Take-Over, these benefits will continue to be paid you only for so long as you remain available for any consulting services required of you under Part Two, Paragraph 4 and abide by the restrictive covenants set forth in Part Two, Paragraph 5.

1. SEVERANCE PAYMENTS. You will receive severance payments from the Company for a period of twelve (12) months following your Involuntary Termination in an aggregate amount equal to the sum of (A) one (1) times the annual rate of base salary in effect for you at the time of your Involuntary Termination plus (B) one (1) times the average of the bonuses paid to you for services rendered in the two (2) fiscal years immediately preceding the fiscal year of your Involuntary Termination. If a bonus is paid to you for only one of those years, then the bonus amount under Clause (B) will be equal to one (1) times such bonus amount. The aggregate severance payments shall be paid to you in equal installments over the twelve-month period in accordance with the Company's normal payroll practices and subject to all applicable withholding taxes. The severance payments will immediately terminate in the event you should cease to remain available for the consulting services required of you under Paragraph 4 or in the event you fail to abide by the restrictive covenants set forth in Paragraph 5. However, in the event your Involuntary Termination occurs in connection with a Hostile Take-Over, your severance payments will be paid to you in the form of a single lump sum amount within thirty (30) days after such Involuntary Termination, and the provisions of Paragraphs 4 and 5 will not apply.

2. HEALTH CARE COVERAGE. The Company will, at its expense, provide you and your eligible dependents with continued health care coverage under the Company's medical/dental plan until the EARLIER of (i) ------- twelve (12) months after the effective date of your Involuntary Termination or (ii) the first date that you are covered under another employer's health benefit program which provides substantially the same level of benefits without exclusion for pre-existing medical conditions. Such coverage will be in lieu of any other continued health care

coverage to which you or your dependents would otherwise be entitled pursuant to the requirements of Code Section 4980B by reason of your termination of employment.

3. OPTION ACCELERATION AND LAPSE OF RESTRICTIONS. Each of your outstanding Options under the Equity Incentive Plans will (to the extent not then otherwise exercisable) automatically accelerate so that each such Option will become immediately exercisable for the total number of shares of Common Stock at the time subject to that Option. Each such accelerated Option, together with all of your other vested Options, will remain exercisable for a period of twelve (12) months following your Involuntary Termination until the end of the specified ten (10)-year option term and may be exercised for any or all of the option shares in accordance with the exercise provisions of the option agreement evidencing the grant. In addition, all restrictions applicable to the Stock Issuances you hold (to the extent those restrictions have not previously lapsed in accordance with the terms of the issuance agreements) will automatically lapse upon your Involuntary Termination.

4. CONSULTING SERVICES. Unless your Involuntary Termination occurs in connection with a Hostile Take-Over, you will make yourself available to perform consulting services reasonably requested of you during the twelve (12)-month period following your Involuntary Termination. You will be compensated at an hourly rate to be agreed upon by you and the Company at the time such consulting services are to be rendered, and you will be reimbursed for all reasonable out-of-pocket expenses incurred in rendering such services upon your submission of appropriate documentation for those expenses.

5. RESTRICTIVE COVENANTS. For the one hundred twenty (120)-day period following your Involuntary Termination:

(i)You will not directly or indirectly, whether for your own account or as an employee, director, consultant or advisor, provide services to any business enterprise which is at the time in competition with any of the Company's then existing or formally planned product lines

and which is located geographically in an area where the Company maintains substantial business activities, unless you obtain the prior written consent of the Board of Directors.

(ii) You will not directly or indirectly encourage or solicit any individual to leave the Company's employ for any reason or interfere in any other manner with the employment relationships at the time existing between the Company and its current or prospective employees.

(iii) You will not induce or attempt to induce any customer, supplier, distributor, licensee or other business relation of the Company to cease doing business with the Company or in any way interfere with the existing business relationship between any such customer, supplier, distributor, licensee or other business relation and the Company.

You acknowledge that monetary damages may not be sufficient to compensate the Company for any economic loss which may be incurred by reason of your breach of the foregoing restrictive covenants. Accordingly, in the event of any such breach, the Company shall, in addition to the cessation of the severance benefits provided you under this agreement and any remedies available to the Company at law, be entitled to obtain equitable relief in the form of an injunction precluding you from continuing to engage in such breach.

None of the foregoing restrictive covenants shall be applicable in the event your Involuntary Termination occurs in connection with a Hostile Take-Over.

6. BENEFIT REDUCTION. In the event of a Change in Control, the following limitations shall become applicable:

a. BENEFIT REDUCTION. If the Change in Control does not constitute a Hostile Take-Over, first the dollar amount of your severance payment under Paragraph 1 will be reduced to the extent necessary to assure that the present value of those benefits will not, when added to the present value of your Equity Parachute Payment and your Other Parachute Payments, exceed 2.99 times your Average Compensation. In the event of a Hostile Take-Over, no reduction will be made to your severance payment (or any other benefit to which you become entitled hereunder), unless necessary to provide you with the maximum after-tax benefit available, after taking into account any parachute excise tax which might otherwise be payable by you under Code Section 4999 and any analogous State income tax provision.

b. RESOLUTION OF DISPUTES. In the event there is any disagreement between you and the Company as to whether one or more benefits to which you become entitled (whether under this letter agreement or otherwise) in connection

with

a Change in Control constitute Equity Parachute Payments or Other Parachute Payments, such dispute is to be resolved as follows:

- In the event temporary, proposed or final Treasury Regulations in effect at the time under Code Section 280G specifically address the status of such benefits or the method for their valuation, the characterization afforded to such benefits by the Regulations, together with the methods prescribed for their valuation, shall be controlling.

- In the event such Regulations do not address the status of the benefits in dispute, the matter shall be submitted for resolution to independent counsel mutually acceptable to you and the Company ("Independent Counsel"). The resolution reached by Independent Counsel shall be final and controlling. However, should the Independent Counsel determine that the status of the benefits in dispute can be resolved through the obtainment of a private letter ruling from the Internal Revenue Service, a formal and proper request for such ruling shall be prepared and submitted by Independent Counsel, and the determination made by the Internal Revenue Service in the issued ruling shall be controlling. All expenses incurred in connection with the retention of Independent Counsel and (if applicable) the preparation and submission of the ruling request shall be paid by the Company.

- The present value of each Equity Parachute Payment and each of the Other Parachute Payments (including your severance payment and Health Care Coverage) shall be determined in accordance with the provisions of Code Section 280G(d)(4) and the Treasury Regulations issued thereunder.

The full amount of your severance benefit under Paragraph 1 shall not be paid to you until any amounts in dispute under this Paragraph 6.b. have been resolved in accordance herewith. However, any portion of such severance payment which would not otherwise exceed the benefit limitation of Paragraph 6.a. even if all amounts in dispute under this Paragraph 6.b. were to be resolved against you will be paid to you in accordance with the applicable provisions of this letter agreement.

c. OVERRIDING LIMITATION. You will in all events be entitled to receive the full amount of your severance payment under Paragraph 1, to the extent those benefits, when added to the present value of your Equity Parachute Payment and your Other Parachute Payments (excluding such severance payment), will nevertheless qualify as reasonable compensation within the standards established under Code Section 280G(b)(4).

d. INTERPRETATION. The provisions of this Paragraph 6 shall in all events be interpreted in such manner as will avoid the imposition of excise taxes under Code Section 4999, and the disallowance of deductions under Code

Section 280G(a), with respect to your severance benefits under this letter agreement.

PART THREE -- MISCELLANEOUS PROVISIONS

1. TERMINATION FOR CAUSE. Should your Involuntary Termination constitute a Termination for Cause, then the Company shall only be required to pay you (i) any unpaid compensation earned for services previously rendered through the date of such termination and (ii) any accrued but unpaid vacation benefits or sick days, and no benefits will be payable to you under Part Two or Part Three of this letter agreement.

2. TERM OF AGREEMENT. The provisions of this letter agreement will continue in effect for a period of five (5) years from the date hereof.

3. GENERAL CREDITOR STATUS. The benefits to which you may become entitled under this letter agreement (except those attributable to your Options or Stock Issuances) will be paid, when due, from the general assets of the Company. Your right (or the right of the executors or administrators of your estate) to receive any such payments will at all times be that of a general creditor of the Company and will have no priority over the claims of other general creditors of the Company.

4. DEATH. Should you die before receipt of all benefits to which you become entitled under this letter agreement, then the payment of such benefits will be made, on the due date or dates hereunder had you survived, to the executors or administrators of your estate. Should you die before you exercise your Severance-Accelerated Options (if any) or any other of your outstanding vested Options, then each such Option may be exercised, during the applicable exercise period in effect hereunder for those options at the time of your death, by the executors or administrators of your estate or by person to whom the Option is transferred pursuant to your will or in accordance with the laws of inheritance.

5. MISCELLANEOUS. The provisions of this letter agreement will be construed and interpreted under the laws of the State of California. This agreement incorporates the entire agreement between you and the Company relating to the subject of severance benefits and supersedes all prior agreements and understandings with respect to such subject matter. This agreement may only be amended by written instrument signed by you and another duly-authorized officer of the Company. If any provision of this letter agreement as applied to any party or to any circumstance should be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the invalidity of that provision shall in no way affect (to the maximum extent permissible by law) the application of such provision under circumstances different from those adjudicated by the court, the application of any other provision of this letter agreement, or the enforceability or invalidity of this letter agreement as a whole. Should any provision of this letter agreement become or be deemed invalid, illegal or unenforceable in any jurisdiction by reason of the scope, extent or duration of its coverage, then such provision shall be deemed amended to the extent necessary to conform to applicable law so as to be valid and enforceable or, if such provision cannot be so amended without materially altering the intention of the parties, then such provision shall be stricken and the remainder of this letter agreement shall continue in full force and effect.

6 REMEDIES. All rights and remedies provided pursuant to this letter agreement or by law will be cumulative, and no such right or remedy will be exclusive of any other. A party may pursue any one or more rights or remedies hereunder or may seek damages or specific performance in the event of another party's breach hereunder or may pursue any other remedy by law or equity, whether or not stated in this letter agreement.

7. ARBITRATION. Any controversy which may arise between you and the Company with respect to the construction, interpretation or application of any of the terms, provisions or conditions of this agreement or any monetary claim arising from or relating to this agreement will be submitted to final and binding arbitration in San Diego, California in accordance with the rules of the American Arbitration Association then in effect.

8. NO EMPLOYMENT OR SERVICE CONTRACT. Nothing in this agreement shall confer upon you any right to continue in the employment of the Company for any period of specific duration or interfere with or otherwise restrict in any way the rights of the Company or you, which rights are hereby expressly reserved by each, to terminate your employment at any time for any reason whatsoever, with or without cause.

9. PROPRIETARY INFORMATION. You hereby acknowledge that the Company may, from time to time during your employment with the Company, disclose to you confidential information pertaining to the Company's business and affairs. All information and data, whether or not in writing, of a private or confidential nature concerning the business or financial affairs of the Company (collectively, "Proprietary Information") is and will remain the sole and exclusive property of the Company. In connection with such Proprietary Information, you agree as follows:

(i) You will not, during your employment with the Company or at any time thereafter, disclose to any third party or directly or indirectly make use of any such Proprietary Information other than in connection with, and in furtherance of, the Company's business and affairs.

(ii)You agree that you will use all files, letters, memoranda, reports, records, data or other written, reproduced or other tangible manifestations of the Proprietary Information, whether created by you or others, to which you have access during your employment with the Company, only in the performance of your duties with the Company. You will return all such materials (whether written, printed or otherwise reproduced or recorded) to the Company immediately upon the termination of your employment with the Company or upon any earlier request by the Company, without retaining any copies, notes or excerpts thereof.

(iii) Your obligations under this Paragraph 9 will continue in effect after the termination of your employment with the Company, whatever the reason or reasons for such termination, and the Company will have the right to communicate with any future or prospective employer concerning your continuing obligations under this Paragraph 9.

Please indicate your acceptance of the foregoing provisions of this severance agreement by signing the enclosed copy of this letter agreement and returning it to the Company.

Very truly yours,

LIGAND PHARMACEUTICALS INCORPORATED

/S/DAVID E. ROBINSON

David E. Robinson
Chairman, President and CEO

DER:bjo
agree\severance.ga

ACCEPTED BY AND AGREED TO

Signature: /S/ GIAMBATTISTA ALIPRANDI
Giambattista Aliprandi

Dated: May 17, 2001

SARM RESEARCH, DEVELOPMENT AND LICENSE AGREEMENT

by and between

TAP PHARMACEUTICAL PRODUCTS INC.

and

LIGAND PHARMACEUTICALS INCORPORATED

dated

JUNE 22, 2001

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SARM RESEARCH, DEVELOPMENT AND LICENSE AGREEMENT

THIS AGREEMENT, effective the 22nd day of June, 2001 (the "Effective Date") is by and between TAP PHARMACEUTICAL PRODUCTS INC., a Delaware corporation, having its principal place of business at 675 North Field Drive, Lake Forest, Illinois 60045 ("TAP") and LIGAND PHARMACEUTICALS INCORPORATED, a Delaware corporation, having its principal place of business at 10275 Science Center Drive, San Diego, California 92121 ("LIGAND").

R E C I T A L S

WHEREAS, LIGAND has developed expertise, proprietary rights and compounds relating to the discovery and development of pharmaceutical products for the treatment and prevention of certain disease indications mediated through the androgen receptor; and

WHEREAS, TAP has expertise in the development, marketing and sales of pharmaceutical products; and

WHEREAS, TAP and LIGAND desire to engage in a joint effort to discover, develop and commercialize pharmaceutical products that are small molecule compounds which act through the androgen receptor; and

WHEREAS, in conjunction with such joint research, development and commercialization, TAP desires to sponsor certain research and development activities to be carried out by LIGAND and LIGAND and TAP desire that TAP develop, register and commercialize products resulting from the joint research and development.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, TAP and LIGAND agree as follows:

ARTICLE 1

DEFINITIONS

For the purposes of this Agreement, the terms defined in this Article 1 shall have the respective meanings set forth below:

1.1"AFFILIATE" shall mean, with respect to a party, any other business entity that directly or indirectly controls, is controlled by, or is under common control with, such party. A business entity or party shall be regarded as in control of another business entity if it owns or, directly or indirectly controls (a) in the case of corporate entities at least *** percent (***%) (or the maximum ownership interest permitted by law) of the equity securities in the subject entity entitled to vote in the election of directors and (b) in the case of an entity that is not a corporation, at least *** percent (***%) (or the maximum ownership interest permitted by law) of the equity securities or other ownership interests with the power to direct the management and policies of such subject entity by any means whatsoever or entitled to elect the corresponding management authority. Notwithstanding the foregoing, for purposes of this Agreement, neither

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

Abbott Laboratories nor Takeda Chemical Industries, Ltd. or any of their subsidiary companies shall be deemed an "Affiliate" of TAP and such entities shall be third parties for all purposes hereunder.

1.2"AGGREGATE ANNUAL RESEARCH FEE" shall mean the fee for a Contract Year as set forth in the table in Section 3.2 unless modified by mutual agreement of LIGAND and TAP.

1.3"ANNUAL RESEARCH FEE" shall mean on a per FTE basis (a) for the first year of the Research Program, *** dollars ($***), and (b) for each subsequent year of the Research Program, the Annual Research Fee for the previous year increased by the percentage increase during the previous year in the Consumer Price Index (CPI) as published by the U.S. Department of Labor, Bureau of Labor Statistics. If such index ceases to be published, then such index shall be replaced with the index that most closely resembles the performance of such index, as determined by the mutual agreement of the parties.

1.4"CLINICAL CANDIDATE" shall mean a Research Compound selected by TAP for pre-clinical development directed towards the filing of an IND.

1.5"CONTRACT YEAR" shall mean the *** period from the Effective Date and each subsequent *** period during the Research Program Term.

1.6"DESIGNATED TARGET" shall mean the androgen receptor.

1.7"FDA" shall mean the United States Food and Drug Administration, any successor entity thereto and any foreign equivalent thereof.

1.8"FIRST COMMERCIAL SALE" shall mean the first sale by TAP, its Affiliates or sublicensees of a Licensed Product in a country after any required marketing approval has been granted by the governing health authority of such country.

1.9"FULL DEVELOPMENT" shall mean development and testing of a Clinical Candidate in humans from its declaration as a Clinical Candidate by TAP through approval by the appropriate regulatory authorities to market such Clinical Candidate as a Licensed Product in the TAP Field.

1.10"FTE" shall mean the full-time equivalent of the scientific work of one (1) scientist for *** which equates to a total of *** or *** of scientific work on or directly related to the Research Program. Each LIGAND scientist billed to the Research Program may be an equivalent of less than or greater than one FTE, based on their hours worked, to meet Research Program requirements.

1.11"IND" shall mean an Investigational New Drug Application as defined in the United States Food, Drug and Cosmetic Act and regulations promulgated thereunder, or any corresponding foreign equivalent thereof or comparable regulatory or scientific filing to initiate human clinical exposure.

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

1.12"JOINT RESEARCH COMMITTEE" or "JRC" shall mean the joint research committee composed of representatives of LIGAND and TAP described in Section 4.1 hereof.

1.13"JOINT DEVELOPMENT COMMITTEE" or "JDC" shall mean the joint development committee composed of representatives of LIGAND and TAP described in Section 5.2 hereof.

1.14"LICENSED PRODUCT" shall mean a Clinical Candidate that has been approved for marketing in the Territory by TAP, its Affiliates or sublicensees.

1.15"LIGAND FIELD" shall mean the treatment or prevention of prostate cancer, benign prostatic hyperplasia, acne and hirsutism.

1.16"NDA" shall mean a New Drug Application as defined in the United States Food, Drug and Cosmetic Act and the regulations promulgated thereunder, or any corresponding foreign equivalent thereof.

1.17"NET SALES" shall mean:

A. With respect to a Licensed Product containing a Research Compound as its sole pharmaceutically active ingredient, the gross invoiced sales of such Licensed Product by a party, its

Affiliates or sublicensees to unrelated third parties less the following deductions:

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***
***

B. With respect to a Licensed Product containing a Research Compound and one or more other pharmaceutically active ingredients which is not a Research Compound, the gross invoiced sales of such Licensed Product in a particular country by a party, its Affiliates and its sublicensees to unrelated third parties less the deductions

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1.18 "PATENT RIGHTS" shall mean (a) all patent applications heretofore or hereafter filed in any country within the Territory owned by or licensed to a party, or to which a party otherwise

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

acquires rights, claiming a Research Compound, Clinical Candidate or Licensed Product, formulations of any of the foregoing, the process of manufacture or use of a Research Compound, Clinical Candidate or Licensed Product, together with any and all patents that have issued or in the future issue therefrom and (b) all divisionals, continuations, continuations-in-part, reexaminations, reissues, renewals, extensions or additions to any such patents and patent applications and patents issuing thereon, as well as foreign equivalents of the foregoing; all to the extent and only to the extent that such party now has or hereafter will have the right to grant licenses or other rights thereunder; provided, however, Patent Rights shall not include U.S. Patent No. *** and any divisionals, continuations, continuations-in-part, reexaminations, reissues, renewals, extensions or additions to such patent, as well as foreign equivalents of the foregoing, unless such patent (or any of the foregoing) includes any claim covering a compound listed on EXHIBIT B in which case such patent (or any of the foregoing) shall be included in the Patent Rights. For purposes of illustration, Patent Rights shall include, but are not limited to U.S. Patent Application Serial Number *** .

1.19 "RESEARCH COMPOUND" shall mean (a) a compound which is identified or confirmed as acting through or mediating the activity of the Designated Target in the Research Program and synthesized during the Research Program Term, or (b) LIGAND's selective modulators of the androgen receptor listed on EXHIBIT B hereto.

1.20 "RESEARCH PROGRAM" shall mean, subject to Sections 3.3 and 14.3, the three (3) year program of research and testing in which LIGAND and TAP will participate and which is described generally in the Draft Technical Operating Plan set forth in Article 3 and EXHIBIT A hereto, as the same may be revised from time to time as provided in this Agreement.

1.21 "RESEARCH PROGRAM TERM" shall mean, subject to Sections 3.3 and 14.3, the three (3) year period of the Research Program measured from the Effective Date, and any renewals and any mutually agreed extensions thereof.

1.22 "ROYALTY TERM" shall mean, on a country-by-country basis, with respect to each Licensed Product in each country, the period of time equal to the longer of (a) *** from the date of the First Commercial Sale of a Licensed Product, (b) the date on which *** (c) with respect to the last patent, other than a Significant Patent, that provides Meaningful Exclusivity and that

contains a Valid Claim, the earlier of (i) *** or (ii) *** or (d) solely in the case of a country that is not a member country of the World Trade Organization, *** . As used herein, "Meaningful Exclusivity" shall mean *** percent (*** %) or more of the independently audited annual sales volume of all forms and formulations of products containing a Research Compound sold in a particular country, provided that the form and source of the independently audited annual sales volume data are satisfactory to both LIGAND and TAP and from a source such as IMS (Intercontinental Medical Statistics) or similar provider of such data. All expenses for such audited annual sales data will be the sole responsibility of that party which would otherwise owe a royalty.

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1.23 "SIGNIFICANT PATENT" shall mean a patent within Patent Rights that contains a Valid Claim covering either (a) the composition of a Research Compound contained in a Licensed Product or (b) one of the registered indications of a Licensed Product.

1.24 "TAP FIELD" shall mean the treatment or prevention of hypogonadism, male sexual dysfunction, female sexual dysfunction, female osteoporosis, frailty, male hormone replacement therapy and all other indications, other than those within the LIGAND Field, with a Licensed Product.

1.25 "TERRITORY" shall mean the entire world.

1.26 "VALID CLAIM" shall mean any claim of an issued or granted and unexpired patent included in Patent Rights, which claim has neither (i) been held invalid or unenforceable by a court or agency of competent jurisdiction (following exhaustion of all possible appeal processes), nor (ii) been admitted by the patentee to be invalid or unenforceable.

ARTICLE 2
REPRESENTATIONS, WARRANTIES AND COVENANTS

Each party hereby represents, warrants and covenants to the other party as follows:

2.1 CORPORATE EXISTENCE AND POWER. Such party (a) is a corporation duly organized, validly existing and in good standing under the laws of the state in which it is incorporated, (b) has the corporate power and authority and the legal right to own and operate its property and assets, to lease the property and assets it operates under lease, and to carry on its business as it is now being conducted, and (c) is in compliance with all known requirements of applicable law, except to the extent that any noncompliance would not have a material adverse effect on the properties, business, financial or other condition of such party and would not materially adversely affect such party's ability to perform its obligations under this Agreement ("Material Adverse Effect").

2.2 AUTHORIZATION AND ENFORCEMENT OF OBLIGATIONS. Such party (a) has the corporate power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder, and (b) has taken all reasonably necessary corporate action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder. This Agreement has been duly executed and delivered on behalf of such party, and constitutes a legal, valid, binding obligation, enforceable against such party in accordance with its terms, subject to the effects of bankruptcy, insolvency or other laws of general application affecting the enforcement of creditor rights and judicial principles affecting the availability of specific performance and general principles of equity whether enforceability is considered a proceeding at law or equity.

2.3 CONSENTS. All necessary consents, approvals and authorizations of all governmental authorities and other persons required to be obtained by such party in connection with the execution, delivery and performance of this Agreement have been and shall be obtained, except to the extent such failure to

obtain would not have a Material Adverse Effect on such party.

2.4 NO CONFLICT. Notwithstanding anything to the contrary in this Agreement, the execution and delivery of this Agreement and the performance of such party's obligations hereunder (a) do not, to the best of its knowledge, conflict with or violate any requirement of applicable laws or regulations reasonably known to a party and (b) do not and shall not, to the best of its knowledge, conflict with, violate or breach or constitute a default or require any consent under, any contractual obligation of such party, except to the extent that such violation, breach, default or the failure to obtain such consent would not have a Material Adverse Effect on such party.

2.5 INTELLECTUAL PROPERTY. Such party (a) owns or is the licensee in good standing of all Patent Rights, trade secrets and other intellectual property to be used by it in connection with the Research Program, except to the extent that such use is to be based upon patents, trademarks and other intellectual property furnished by the other party pursuant to this Agreement; (b) has received no notice of infringement or misappropriation of any alleged rights asserted by any third party in relation to any technology to be used by it in connection with the Research Program; (c) is not in default with respect to any third-party agreement under which it has rights to be used by it in connection with the Research Program; and (d) is not aware of any patent, trade secret or other right of any third party which could materially adversely affect its ability to carry out its responsibilities under the Research Program or the other party's ability to exercise or exploit any license granted to it under this Agreement. Such party agrees to immediately notify the other party in writing in the event such party hereafter receives a notice of the type referred to in (b) above, becomes in default under any third-party agreement referred to in (c) above, or becomes aware of any patent, trade secret or other right of the nature referred to in (d) above.

2.6 DISCLAIMER OF WARRANTIES. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A REPRESENTATION MADE, OR WARRANTY GIVEN, BY LIGAND OR TAP (A) THAT ANY PATENT WILL ISSUE BASED UPON ANY PENDING PATENT APPLICATION WITHIN THE PATENT RIGHTS, (B) THAT ANY PATENT WITHIN THE PATENT RIGHTS WHICH ISSUES WILL BE VALID OR ENFORCEABLE, OR (C) THAT, EXCEPT FOR THE PROVISIONS OF SECTION 2.5 HEREIN WHICH SHALL NOT BE AFFECTED BY THIS SECTION 2.6, THE USE OF ANY LICENSE GRANTED HEREUNDER OR THE USE OF ANY PATENT RIGHTS WILL NOT INFRINGE THE PATENT OR PROPRIETARY RIGHTS OF ANY OTHER PERSON. FURTHERMORE, NEITHER LIGAND NOR TAP MAKES ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE PATENT RIGHTS EXCEPT AS PROVIDED IN SECTION 2.5.

ARTICLE 3
RESEARCH PROGRAM

3.1 Research Procedures.

3.1.1 CONDUCT OF RESEARCH. LIGAND and TAP each shall conduct the work assigned to it in the Research Program in good scientific manner, and in compliance in all material respects with all requirements of applicable laws and regulations and with all applicable good laboratory practices and good manufacturing practices to attempt to achieve its objectives hereunder efficiently and expeditiously. LIGAND and TAP each shall proceed diligently with

the work set out in the Research Program assigned to it by using their respective good faith efforts to provide, among others, the following resources:

(a) in the case of LIGAND, allocation of that number of FTEs per year determined by dividing the Aggregate Annual Research Fee for a Contract Year by the Annual Research Fee for that year, using personnel with sufficient skills and experience, together with sufficient equipment and facilities, to carry out LIGAND's obligations under the Research Program and to accomplish the objectives thereunder, provided, however, that at least *** (*** %) of the FTEs shall be made up of persons engaged full time in

the Research Program; and

(b) in the case of TAP, allocation of a reasonable amount of time and effort, using personnel or third parties with sufficient skills and experience, together with sufficient equipment and facilities, to carry out TAP's obligations under the Research Program and to accomplish the objectives thereunder.

3.1.2 SCREENING RESPONSIBILITY. LIGAND shall be responsible for conducting *** as set forth in the Research Program and as designated by the JRC and shall promptly inform TAP and the JRC of the progress and results thereof.

3.1.3 USE OF RESEARCH FUNDING. LIGAND shall use the research funding it receives from TAP under the Agreement for the purpose of achieving the objectives of the Research Program.

3.1.4 SUBCONTRACTS DURING RESEARCH PROGRAM. Neither LIGAND nor TAP shall subcontract to Affiliates or third parties portions of the Research Program to be performed by it without the prior consent of the JRC, which consent shall not be unreasonably withheld. Any agreement between a party and a subcontractor shall contain confidentiality obligations equivalent in scope to the confidentiality obligations contained in this Agreement to protect LIGAND's confidential information for as long a duration as is reasonably possible, up to the duration of TAP's obligations contained herein but in any case not less than *** beyond the conclusion of work contemplated in the Agreement with the subcontractor, and shall be in compliance in all material respects with all requirements of applicable laws and regulations, together with all applicable good laboratory practices and good manufacturing practices. The contracting party shall supervise and be responsible under this Agreement for such subcontract work.

3.2 FUNDING OF THE RESEARCH PROGRAM. In consideration for LIGAND's performance of its obligations under the Research Program, TAP shall pay LIGAND, at a minimum, an amount equal to *** percent (*** %) of the Aggregate Annual Research Fee set forth below on a quarterly basis in advance for services to be performed by LIGAND under the Research Program. The first payment shall be due and payable on the fifth business day following the

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Effective Date. Subsequent payments shall be due and payable on or before the fifteenth business day prior to the commencement of each subsequent quarterly period.

<TABLE>
<CAPTION>

CONTRACT YEAR	MINIMUM FTES	MINIMUM AGGREGATE ANNUAL RESEARCH FEE
<S>	<C>	<C>
***	***	***
***	***	***
***	***	***

</TABLE>

*Subject to CPI adjustment per Section 1.3 herein

The FTEs and Aggregate Annual Research Fee shown above is the minimum amount to be allocated by LIGAND and paid by TAP under the Research Program, and may be increased as recommended by the JRC, and approved in writing by TAP and LIGAND. In the event this Agreement is terminated by TAP pursuant to Section 14.2, TAP shall be entitled to (a) a *** refund of the minimum Aggregate Annual Research Fee previously paid to LIGAND for the particular quarterly period during which the Agreement is terminated as well as (b) a *** refund of all payments which have been made for any subsequent quarterly period, to the extent such amounts have already been paid. Such refund shall be made by LIGAND to TAP within forty-five (45) days of the date that TAP terminates this Agreement. Within thirty (30) days after the end of each Contract Year, a reconciliation shall be made based upon the records of LIGAND and LIGAND shall remit to TAP the excess,

if any, of the Aggregate Annual Research Fee for such Contract Year, if any, over the product of the Annual Research Fee for such Contract Year multiplied by the number of LIGAND FTEs used in the Research Program during such Contract Year.

3.3 ANNUAL RENEW OPTION. TAP shall have the option to extend the original term of the three-(3) year Research Program by up to two (2) additional one-(1) year terms. At least *** prior to the *** anniversary of the Effective Date, TAP shall provide LIGAND with written notice of its intent to extend the Research Program for an *** . Should TAP desire to further extend the Research Program for yet *** it shall provide LIGAND with written notice of its intent at least *** prior to the extended *** anniversary of the Effective Date. The amount paid to LIGAND per FTE shall, at a minimum, be in accordance with Section 1.3 herein, and the Aggregate Annual Research Fee shall, at a minimum, be the same as for Contract Year *** under Section 3.2 herein, plus any increase for CPI adjustments per Section 1.3 herein, unless otherwise authorized by the JRC.

3.4 LIGAND RESEARCH PROGRAM EXPENSES. TAP shall reimburse LIGAND for all reasonable expenses authorized by the JRC and incurred by LIGAND, which are not covered by the Aggregate Annual Research Fee, within thirty (30) days of the presentation of an invoice by LIGAND for the same.

3.5 EXCLUSIVITY.

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

3.5.1 During the Research Program Term, subject to Section 3.5.2, LIGAND and TAP shall work exclusively with each other, whether directly, indirectly or through an Affiliate, in the TAP Field; provided, TAP shall have the right to distribute and/or co-promote Androgel with Unimed Pharmaceuticals, Inc. pursuant to that certainCo-Promotion Agreement dated 1 June 2001.

3.5.2 Notwithstanding the provisions of Section 3.5.1 above, but subject to TAP's license rights under Article 6 below and the parties' confidentiality obligations set forth in Articles 11 and 12 below, LIGAND shall have the right to ***

3.6 RESEARCH PROGRAM RECORDS AND REPORTS.

3.6.1 RECORDS. LIGAND and TAP each shall maintain records, in sufficient detail and in good scientific manner appropriate for patent purposes, which shall be complete and accurate and shall fully and properly reflect all work done and results achieved in the performance of the Research Program (including all data in the form required under all applicable laws and regulations). Such records shall include books, records, reports, research notes, charts, graphs, comments, computations, analyses, recordings, photographs, computer programs and documentation thereof, computer information storage means, samples of materials and other graphic or written data generated in connection with the Research Program including any data required to be maintained pursuant to all requirements of applicable laws and regulations.

3.6.2 INSPECTION OF RECORDS. LIGAND and TAP each, at its own expense, shall have the right, during normal business hours and upon reasonable notice, to inspect and copy all scientific and technical records and reports related to the Research Program and reasonably deemed relevant by the JRC for the performance of such party's obligations hereunder. Each party shall maintain such records and the information of the other party contained therein in confidence in accordance with Section 11.1 below and shall not use such records or information except to the extent otherwise permitted by the Agreement.

3.6.3 RESEARCH REPORTS. LIGAND and TAP each shall keep the other party fully informed as to all discoveries and technical developments made under the Research Program. LIGAND and TAP each shall prepare, and distribute to the other party, a reasonably detailed written summary report at the meetings of the JRC, but no later than *** of the actual work being completed, whichever time period is shorter. LIGAND and TAP shall, upon the reasonable request of the other party, provide the requesting party with appropriate final reports of research studies conducted under the Research Program for use in connection with

the filing of an IND or Full Development of a Research Compound as contemplated hereunder ("Final Reports"). During the Research Program Term, the preparation of Final Reports shall be at no charge to the requesting party; following the Research Program Term, the requesting party may obtain such Final Reports only if such party agrees to pay the reasonable direct costs associated with the preparation of such Final Reports.

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

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ARTICLE 4
MANAGEMENT OF THE RESEARCH PROGRAM

4.1 JOINT RESEARCH COMMITTEE.

4.1.1 COMPOSITION OF THE JRC. The Research Program and all pre-clinical testing of Research Compounds, including Clinical Candidates, shall be conducted under the direction of the JRC. The JRC shall be composed of three (3) named representatives of TAP and three (3) named representatives of LIGAND. The initial members of the JRC shall be as set forth below:

<TABLE>
<CAPTION>

LIGAND REPRESENTATIVES	TAP REPRESENTATIVES
<S>	<C>
***	***
***	***
***	***

</TABLE>

Each party may replace one or more of its representatives on the JRC from time to time in its sole discretion, with prior written notice to the other party.

4.1.2 RESPONSIBILITIES OF THE JRC. The JRC shall supervise and coordinate the Research Program. In addition to the other responsibilities specifically given to the JRC in this Agreement, the JRC shall also, for example, (a) review the research by LIGAND and TAP under the Research Program and the pre-clinical testing of Research Compounds before commencement of Full Development, (b) monitor the progress of the Research Program and evaluate the work performed and the results obtained in relation to the goals of the Research Program, (c) plan future activities under, and make any necessary or desirable modifications to, the Research Program, (d) subject to the minimum FTE requirement of Section 3.2, recommend adjustment to the size and composition of LIGAND's research team , (e) recommend Research Compounds for further evaluation by the parties under the Research Program and for designation as Clinical Candidates (typically conducted *** prior to anticipated IND filing) and (f) recommend Clinical Candidates for Full Development by TAP.

4.1.3 MEETINGS OF THE JRC. The JRC shall meet at least once each three (3) month period during the Research Program Term, at such times and places as agreed to by LIGAND and TAP, alternating between San Diego and Lake Forest, or such other locations as the parties shall agree. LIGAND shall be responsible for hosting the first meeting of the JRC. The JRC shall continue to meet after the expiration of the Research Program so long as TAP, its Affiliates or sublicensees are developing Research Compounds that have not commenced Full Development. Meetings of the JRC may be attended by such other directors, officers, employees, consultants and other agents of LIGAND and TAP as the parties from time to time

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reasonably agree. The party hosting a JRC meeting shall submit an agenda to the other party at least thirty (30) days prior to the JRC meeting the party is hosting. Such an agenda shall be freely amendable by the parties up to five (5) days prior to the meeting. The party hosting each meeting of the JRC promptly shall prepare, and deliver to the other party within fifteen (15) business days after the date of such meeting, minutes of such meeting setting forth all decisions of the JRC relating to the Research Program in form and content reasonably acceptable to the other party. Minutes shall be deemed approved unless any member of the JRC objects to the accuracy of such minutes in writing to the other party within *** after receipt. If a party objects to the minutes and the objection is not resolved, the objection will be deemed a dispute and resolved pursuant to Article 20 hereof. In addition to the quarterly in-person meetings described herein, the JRC may schedule additional in-person and telephonic meetings, as necessary, in which case the party desiring to hold the additional meeting shall be responsible for preparing the agenda and minutes of such meeting as described herein.

4.1.4 ACTIONS BY THE JRC. Any approval, determination or other action agreed to by a majority of the TAP members and a majority of the LIGAND members of the JRC present at the relevant JRC meeting (whether quarterly or otherwise and either in-person or telephonic) shall be the approval, determination or other action of the JRC; provided, however, that at least two (2) representatives of each party shall be present at such meeting.

4.2 DISAGREEMENTS. All disagreements within the JRC shall be resolved in the following manner:

4.2.1 Within *** of the relevant JRC meeting, the representatives of the JRC shall present the disagreement to *** on behalf of LIGAND, and *** on behalf of TAP or their designees.

4.2.2 Such executives shall confer within *** of the relevant JRC meeting to discuss each party's view and to explain the basis for their respective positions of such disagreement, and in good faith shall attempt to resolve such disagreement between themselves.

4.2.3 If such executives cannot resolve such disagreement within *** of the relevant JRC meeting, then such disagreement shall be resolved pursuant to Article 20 hereof.

4.3 AVAILABILITY OF EMPLOYEES. Each party shall make its employees engaged in the Research Program and relevant reports of non-employee consultants available, upon reasonable notice during normal business hours, at their respective places of employment to consult with the other party on issues arising during the Research Program and in connection with any request from any regulatory agency, including regulatory, scientific, technical and clinical testing issues.

4.4 VISIT OF FACILITIES. Representatives of LIGAND and TAP may, upon reasonable notice during normal business hours, (a) visit the facilities where the Research Program is being conducted, to the degree that such rights can be reasonably acquired from third parties (b) consult informally, during such visits and by telephone, with personnel of the other party

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performing work on the Research Program, and (c) with the other party's prior approval, which approval shall not be unreasonably withheld, visit the sites of any experiments being conducted by such other party in connection with the Research Program. On such visits, an employee of the party conducting the research or development shall accompany the employee(s) of the visiting party. If requested by the other party, LIGAND and TAP shall cause appropriate individuals working on the Research Program to be available for meetings at the location of the facilities where such individuals are employed at times reasonably convenient to the party responding to such request.

ARTICLE 5
DEVELOPMENT PROGRAM

5.1 RECOMMENDATION OF CLINICAL CANDIDATES. LIGAND, TAP and/or the JRC from time to time shall make recommendations of Research Compounds as Clinical Candidates for development by TAP, including Full Development. TAP shall have the right in its sole discretion, but without the obligation, to select Research Compounds as Clinical Candidates (Declaration of Clinical Candidate) and shall give prompt written notice to LIGAND of each such selection. TAP shall conduct such development of each such selected Clinical Candidate as TAP desires and shall inform LIGAND, the JRC and/or JDC, as appropriate, of the progress and results thereof. TAP, at its sole expense, shall fund the costs of development of any such Clinical Candidate.

5.2 Joint Development Committee.

5.2.1 COMPOSITION OF THE JDC. The Joint Development Committee ("JDC") shall be composed of two (2) named representatives of TAP and two (2) named representatives of LIGAND. TAP and LIGAND shall identify the initial members of the JDC within thirty (30) days of the commencement of Full Development for the first Clinical Candidate by TAP. Each party may replace one or more of its representatives on the JDC from time to time in its sole discretion, with prior written notice to the other party.

5.2.2 RESPONSIBILITIES OF THE JDC. The purposes of the JDC shall be to monitor and comment upon the Full Development of Clinical Candidates through the initiation of Phase III Clinical Trials. As part of its responsibilities, the JDC shall review and recommend clinical development plans and progress on Phase I and Phase II studies, through initiation of Phase III studies. The party hosting each meeting of the JDC promptly shall prepare, and deliver to the other party within thirty (30) days after the date of such meeting, minutes of such meeting setting forth all recommendations of the JDC relating to the Full Development of each Clinical Candidate in form and content reasonably acceptable to the other party.

5.2.3 MEETINGS OF THE JDC. The JDC shall meet at least once each four (4) month period during the period of time any Clinical Candidate is undergoing Full Development, through the initiation of Phase III Clinical Trials for the last Clinical Candidate in Full Development, at such times and places as agreed to by LIGAND and TAP, alternating between San Diego and Lake Forest, or such other locations as the parties shall agree. Meetings of the JDC may be attended by such other directors, officers, employees, consultants and other agents of LIGAND and TAP as the parties from time to time reasonably agree.

5.2.4 RECOMMENDATIONS BY THE JDC. Any recommendations agreed upon to by a majority of the TAP members and a majority of the LIGAND members of the JDC present at the relevant JDC meeting shall be reviewed and given serious consideration by TAP, its Affiliates or sublicensees in the Full Development of Clinical Candidates.

5.3 FULL DEVELOPMENT. TAP, at its sole expense, shall fund the costs of Full Development of Clinical Candidates and Licensed Products. Notwithstanding anything else in this Agreement, but subject to LIGAND's rights under Article 6, TAP shall have the sole discretion to determine which Clinical Candidates and/or Licensed Products to develop or market, or to continue to develop or market, those for which regulatory approval to market will be sought, and when and where and how and on what terms and conditions, to market such Licensed Products in the Territory. LIGAND shall within a reasonable period of time transfer all relevant technical information relating to a particular Clinical Candidate in Full Development by TAP to TAP prior to the initiation by TAP of Phase II studies with respect to such Clinical Candidate; provided LIGAND shall have no obligation to transfer to TAP any LIGAND Information (as defined in Section 11.2 below) related to LIGAND's proprietary technologies or processes not licensed hereunder.

5.4 DEVELOPMENT INFORMATION. TAP shall keep LIGAND informed as to the progress of Clinical Candidates and Licensed Products through Full Development

within the TAP Field, and the filing and obtaining of the approvals necessary for marketing. Within *** after the end of the second calendar quarter following the designation of a Clinical Candidate by TAP and every *** thereafter, TAP shall provide to LIGAND a reasonably detailed written report which shall describe the progress and plans, including clinical development plans, for each Clinical Candidate and any resulting Licensed Products, all as supported by adequate updated data.

5.5 TAP'S DILIGENCE OBLIGATIONS. TAP shall use its good faith efforts to conduct such pre-clinical and human clinical trials as TAP determines are necessary or desirable to obtain regulatory approvals to manufacture and market Licensed Products in the Territory as TAP desires and diligently to develop, seek necessary approval to market, commence marketing and market Licensed Products in the Territory.

5.6 VISIT OF FACILITIES. Representatives of LIGAND and TAP may, upon reasonable notice during normal business hours, with the other party's prior approval, which approval shall not be unreasonably withheld, visit the sites of any experiments being conducted by such other party in connection with Full Development to the degree that such rights can reasonably be acquired from third parties. On such visits, an employee of the party conducting the development shall accompany the employee(s) of the visiting party. If requested by the other party, LIGAND and TAP shall cause appropriate individuals working on Full Development to be available for meetings at the location of the facilities where such individuals are employed at times reasonably convenient to the party responding to such request.

ARTICLE 6
LICENSES -- RESEARCH, DEVELOPMENT, MARKETING AND MANUFACTURING

6.1 LICENSE GRANT TO TAP. Subject to the provisions hereof, LIGAND hereby grants to TAP an exclusive license, with the right to sublicense, within the TAP Field and Territory under LIGAND's Patent Rights and trade secrets, to make, have made, use, have used, import, export, sell, offer for sale, have sold or otherwise have developed or develop Clinical Candidates selected for Full Development by TAP hereunder. The license granted in this Section 6.1shall not include a license to, or the right to practice or otherwise use LIGAND's co-transfection technology, or any other LIGAND technology useful in the identification and/or characterization of Research Compounds. The license provided in this Section 6.1 shall be exclusive even as to LIGAND, except as otherwise provided in Sections 6.4 and 6.5 of this Agreement.

6.2 LICENSE GRANT TO LIGAND. Subject to the provisions hereof, TAP hereby grants to LIGAND an exclusive license, with the right to sublicense, within the LIGAND Field, which license shall be exclusive even as to TAP with respect to Research Compounds, under TAP's Patent Rights and trade secrets throughout the Territory, including TAP's rights in any jointly owned Patent Rights, which would be infringed but for such license, to make, have made, use, have used, sell, offer for sale, have sold, export and import products within the LIGAND Field. Subject to Section 3.5.1, TAP retains the right to practice TAP Inventions (as defined in Section 13.1 below) for any purpose whatsoever in any and all fields other than the LIGAND Field.

6.3 LIMITATION ON SUBLICENSE RIGHTS. Each party shall deliver a copy of each sublicense to the other party promptly after execution. In addition to provisions allowing such party to disclose the existence of any sublicense and its terms to the other party, any sublicense granted by a party shall contain terms and conditions substantially similar to *** of this Agreement, but no sublicense or other agreement shall relieve a party of any obligations under this Agreement.

6.4 LIGAND OPTION. No less than *** prior to the expiration of the initial three (3) year term of the Research Program, LIGAND may provide written notice (the "LIGAND Notice") to TAP of its intent to exercise the LIGAND Option (as defined below). Within *** of TAP's receipt of the Ligand Notice, TAP shall have the right to select up to a maximum of *** Research Compounds, a minimum of

*** of which shall have been declared Clinical Candidates. Within *** following the expiration of the initial three (3) year term of the Research Program and following delivery of the LIGAND Notice, LIGAND shall have the right to select (the "LIGAND Option") for development and commercialization one (1) Research Compound and one (1) backup Research Compound for indications within the TAP Field (the "Selected Research Compound(s)"), said Research Compound and backup Research Compound being selected from among those Research Compounds that TAP has not selected hereunder. Following LIGAND's exercise of the LIGAND Option, LIGAND shall have the exclusive, worldwide right and license, including the right to grant sublicenses, to develop and commercialize the Selected Research Compound(s) in the TAP Field. TAP shall have the right,

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exercisable within *** after the receipt of Phase IIA data from LIGAND for the Selected Research Compound(s), to negotiate with LIGAND regarding the co-development and co-promotion of said Selected Research Compound(s) for any indications within the TAP Field within the United States and Canada. The terms of such co-development and co-promotions shall be negotiated in good faith between the parties for a period of up to *** following LIGAND's delivery of Phase IIA Data for the Selected Research Compound(s). If LIGAND and TAP are unable to agree upon the terms of such co-development and co-promotion within said *** period of time, then LIGAND agrees that it shall not offer substantially more favorable terms to a third party for the right to co-develop and co-promote the Selected Research Compound(s) within the TAP Field and within the United States and Canada without first offering the same terms to TAP. Should TAP choose not to exercise its right to negotiate for the co-development and co-promotion of the Selected Research Compound(s), then LIGAND shall be required to report and pay a royalty of *** percent (*** %) of the Net Sales of such Selected Research Compound(s) within the TAP Field in the same manner as TAP under Articles 7, 8 and 9 of this Agreement, except that no such royalty shall be owed by LIGAND to TAP with respect to Research Compound(s) listed on EXHIBIT B hereto, unless such Research Compounds were the subject of *** relevant IN VIVO (animal) studies under the Research Program.

6.5 AFTER EXPIRATION. Within *** of the end of the Research Program Term, TAP shall have the right to select additional Research Compounds (other than Selected Research Compounds) to the extent necessary to replace any Research Compounds previously selected by TAP under Section 6.4 (including any Clinical Candidates previously included therein) and subsequently dropped from development by TAP, such that TAP shall have up to *** Research Compounds, a minimum of *** of which shall have been declared Clinical Candidates, selected under this Section 6.5 and under Section 6.4 at the end of *** period following the end of the Research Program Term. LIGAND shall then have the right in its sole discretion at its sole expense, for its own benefit or together with an Affiliate or a third party, to develop and commercialize within the Territory for any and all indications, any Research Compound(s) not selected by TAP under this Section 6.5 ("Remaining Research Compounds"). LIGAND shall be required to report and pay a royalty of *** percent (*** %) of the Net Sales of such Remaining Research Compound(s) within the TAP Field in the same manner as TAP under Articles 7, 8 and 9 of this Agreement, except that no such royalty shall be owed with respect to Research Compound(s) listed on EXHIBIT B hereto, unless such Research Compounds were the subject of *** relevant IN VIVO (animal) studies under the Research Program.

6.6 INFORMATION CONCERNING SELECTED RESEARCH COMPOUNDS. LIGAND shall keep TAP informed as to the progress of any Selected Research Compounds or Remaining Research Compounds to which LIGAND shall have rights pursuant to Section 6.4 or 6.5, respectively, through approval by the appropriate regulatory authorities to market any such Selected Research Compound or Remaining Research Compound as a product in the TAP Field, including the filing and obtaining of the approvals necessary for marketing. Within *** after the end of the *** following the exercise of LIGAND's option under Section 6.4 and every *** thereafter, LIGAND shall provide to TAP a reasonably detailed written report which shall describe the progress and plans, including clinical development plans, for each Selected Research Compound,

all as supported by adequate updated data. LIGAND shall provide TAP with the opportunity to discuss the information contained in any such reports with appropriate LIGAND personnel.

ARTICLE 7
FEES, ROYALTIES AND MILESTONE PAYMENTS

7.1 ROYALTIES PAYABLE BY TAP. TAP shall pay to LIGAND, throughout the Royalty Term, royalties on Licensed Products equal to the following percentages of Net Sales calculated each year on a product-by-product basis, by TAP, its Affiliates and sublicensees in the Territory:

<TABLE>
<CAPTION>

ANNUAL NET SALES (IN MILLIONS) OF EACH LICENSED PRODUCT IN THE TERRITORY	PERCENTAGE
<S>	<C>
***	***
***	***
***	***

</TABLE>

For the purposes of clarification, when determining the applicable royalty percentage set forth above, the annual Net Sales of all forms, formulations and combinations of a particular Licensed Product across the Territory shall be aggregated.

Royalties under this Article 7 shall be payable only once with respect to a given Licensed Product, regardless of the number of Valid Claims within the Patent Rights pertaining to the Licensed Product, or the number of countries in which the manufacture, use or sale of a given Licensed Product occurs.

7.2 ROYALTY OFFSET. Subject to the provisions of Section 10.1, if TAP becomes obligated after the Effective Date, to pay royalties to any third party in connection with the manufacture, use or sale of a Clinical Candidate or Licensed Product within the TAP Field, *** percent (*** %) of such royalties shall be creditable against royalties otherwise payable to LIGAND under this Agreement, provided such credit shall not exceed *** percent (*** %) of the royalty which would otherwise be payable to LIGAND.

7.3 MILESTONE PAYMENTS. As consideration for additional Clinical Candidate and Licensed Product development milestones when achieved by LIGAND, TAP shall make the following non-refundable payments to LIGAND.

7.3.1 PROVISION OF LGD2226 DRUG SUBSTANCE. TAP shall pay LIGAND three million, five hundred thousand dollars ($3,500,000.00) when LIGAND provides to TAP no less than 8 kg of GMP LGD2226 Drug Substance formally released by LIGAND Quality Assurance and Quality Control as having passed all appropriate quality tests, together with a comprehensive report which, in LIGAND's judgment, summarizes the supporting information regarding: (a) the LIGAND developed Drug Substance manufacturing process, (b) Drug Substance analytical

methods for release testing and stability monitoring developed by LIGAND, and (c) development of LIGAND clinical prototype formulations (0.1 and 1 mg dose

sizes) of the Drug Substance. This payment cannot be offset against any other payments due pursuant to this Agreement.

7.3.2 STAGES OF DEVELOPMENT. When the following Stages of Development are achieved, TAP shall pay LIGAND the milestone payments at the times set forth below with respect to each Clinical Candidate or Licensed Product, as the case may be.

<TABLE>
<CAPTION>

Stage of Development	Milestone Payment (in millions)
<S>	<C>
***	***
***	***
***	***
***	***
***	***
***	***
TOTAL	

</TABLE>

As used herein, "Major Market" shall mean *** . "Major Market Approval" shall mean final approval to market a Licensed Product in a Major Market, and "Initiation" of Phase II or Phase III shall be deemed to occur upon the enrollment of the first patient in the given Phase II or Phase III clinical trial in a Major Market. If Milestone Payments are made on a Clinical Candidate that does not achieve Major Market Approval for a given indication, then one (1) backup Research Compound or Clinical Candidate at any one time, as the case may be, can be substituted for the unapproved Clinical Candidate in the same indication, and no additional Milestone Payments shall be due on the backup Clinical Candidate until it has advanced beyond the last stage of development on which a Milestone Payment was paid for the unapproved Clinical Candidate. Milestone Payments pursuant to this Section 7.3.2 shall be payable only once for each Clinical Candidate that achieves Major Market Approval. However, once a Clinical Candidate achieves Major Market Approval, then all other Clinical Candidates developed by TAP for the same indication shall be subject to their own set of Milestone Payments pursuant to this Section 7.3.2, such that for each additional Clinical Candidate receiving Major Market Approval, TAP shall pay LIGAND the full set of Milestone Payments totaling *** dollars ($ ***). No additional milestone payments shall be due for additional Major Market Approvals for each Clinical Candidate or Licensed Product.

ARTICLE 8
ROYALTY REPORTS AND ACCOUNTING

8.1 REPORTS, EXCHANGE RATES. During the term of this Agreement following the First Commercial Sale of a Licensed Product, TAP shall furnish to LIGAND a written report within sixty (60) days of the end of each calendar quarter showing in reasonably specific detail, on a country by country basis, (a) the gross sales of all Licensed Products sold by TAP, its Affiliates

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and its sublicensees in the Territory during the Reporting Period (as defined in this Section 8.1 below) to which the report is applicable and the calculation of Net Sales from such gross sales; (b) the royalties payable in U.S. dollars, if any, which shall have accrued hereunder based upon Net Sales of Licensed Products; (c) withholding taxes, if any, required by law to be deducted in respect of such sales; (d) the dates of the First Commercial Sales of any Licensed Products in any country in the Territory during the Reporting Period; and (e) the exchange rates used in determining the amount of U.S. dollars. With respect to sales of Licensed Products invoiced in U.S. dollars, the gross sales, Net Sales, and royalties payable shall be expressed in U.S. dollars. With respect to sales of Licensed Products invoiced in a currency other than U.S. dollars, the gross sales, Net Sales and royalties payable shall be expressed in the domestic currency of the party making the sale together with the U.S. dollar

equivalent of the royalty payable, calculated using the Inter Bank rate set forth in the International Report published by International Reports Inc. as Foreign Exchange Rates quoted in New York on the day nearest the last business day of the calendar quarter. As used in this Section 8.1, the term "Reporting Period" shall mean the fiscal quarter ending on the final day of March, June, September and December (as the case may be).

8.2 AUDITS.

8.2.1 Upon the written request of a party and not more than *** in each calendar year, the other party shall permit an independent certified public accounting firm of nationally recognized standing, selected by the party requesting the audit and acceptable to the other party,(whose acceptance shall not be unreasonably withheld) at the requesting party's expense, to have access during normal business hours to such of the records of the other party as may be reasonably necessary to verify the accuracy of the royalty reports hereunder for any year ending not more than *** prior to the date of such request. The accounting firm shall disclose to the requesting party only whether the records are correct or not and, if applicable, the specific details concerning any discrepancies. No other information shall be shared unless the audited party invokes the dispute resolution proceedings of Article 20.

8.2.2 If such accounting firm concludes that additional royalties were owed during such period, the audited party shall pay the additional royalties within *** of the date the requesting party delivers to the audited party such accounting firm's written report so concluding. The fees charged by such accounting firm shall be paid by the requesting party; PROVIDED, HOWEVER, if the audit discloses that the royalties payable by the audited party for the audited period are more than *** percent (*** %) of the royalties actually paid for such period, then the audited party shall pay the reasonable fees and expenses charged by such accounting firm.

8.2.3 The parties shall include in each permitted sublicense granted by it pursuant to the Agreement a provision requiring the sublicensee to make reports to the sublicensor, to keep and maintain records of sales made pursuant to such sublicense and to grant access to such records by the licensing party's accounting firm to the same extent required of parties in Section 8.2.1 under this Agreement. Upon the expiration of *** following the end of

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any year, the calculation of royalties payable with respect to such year shall be binding and conclusive upon LIGAND, TAP and its sublicensees, and such sublicensees shall be released from any liability or accountability with respect to royalties for such year.

8.3 CONFIDENTIAL FINANCIAL INFORMATION. The parties shall treat all financial information subject to review under this Article 8 or under any sublicense agreement as confidential, and shall cause its accounting firm to retain all such financial information in confidence, except as otherwise specified in Section 8.2.1.

ARTICLE 9
PAYMENTS

9.1 PAYMENT TERMS. Royalties shown to have accrued by each royalty report provided for under Article 8 of this Agreement shall be due and payable on the date such royalty report is due. Payment of royalties in whole or in part may be made in advance of such due date.

9.2 PAYMENT METHOD. All royalties and other payments by TAP to LIGAND under this Agreement shall be made by bank wire transfer in immediately available funds to such account as LIGAND shall designate at least thirty (30) days before such payment is due; provided, however, that any fees or taxes imposed on a transfer by a non-United States Bank that would not be imposed on a transfer by a United States Bank shall be paid by TAP. If at any time legal

restrictions in any country in the Territory prevent the prompt remittance in the manner set forth in this Section 9.2 of part or all royalties owing with respect to Licensed Product sales in such country, then the parties shall mutually determine a lawful manner of remitting the restricted part of such royalty payments so long as such legal restrictions exist.

9.3 WITHHOLDING TAXES. The parties may deduct the amount of any taxes imposed on the other party which are required to be withheld or collected by the party remitting payment, its Affiliates or sublicensees under the laws of any country on amounts owing from one party to the other party hereunder to the extent one party, its Affiliates or sublicensees pay to the appropriate governmental authority on behalf of the other party such income taxes. The party withholding such taxes shall promptly deliver to the other party proof of payment of such taxes together with copies of all communications from or with such governmental authority with respect thereto.

9.4 LATE PAYMENTS. Unless otherwise provided in this Agreement, a party shall pay interest to the other party on the aggregate amount of any payments by a party that are not paid on or before the date such payments are due under the Agreement at a rate per annum equal to the lesser of the prime rate of interest as reported by Bank of America NT&SA in San Francisco, California, from time to time, plus *** percent (*** %), or the highest rate permitted by applicable law, calculated on the number of days such payment is delinquent.

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ARTICLE 10
INFRINGEMENT ACTIONS BY THIRD PARTIES

10.1 If a party, or to its knowledge, any of its Affiliates, sublicensees or customers shall be sued by a third party for infringement of a patent because of the development, manufacture, use or sale of Research Compounds, Clinical Candidates or Licensed Products, such party shall promptly notify the other in writing of the institution of such suit. The party sued shall control the defense of such suit at its own expense. The other party shall cooperate fully in the defense of such suit and shall furnish to the party that has been sued all evidence and assistance in its control. The party sued shall make a preliminary decision to defend or not defend its interests in such suit and shall so notify the other party in writing of its decision within *** business days of the institution of such a suit. If a party after electing to defend a suit should at any time elect to drop such defense, said party shall immediately notify the other party. If the party sued notifies the other party in writing per the above that it shall not defend such a suit, then the other party shall have the right, but not the obligation, to defend its interests in such a suit, and shall have the right to litigate, settle or otherwise dispose of such suit as its sees fit, provided, however, that such other party may not settle such suit in a manner that would materially impact or adversely affect the Patent Rights of the party originally sued. Any judgments, settlements or damages payable with respect to legal proceedings covered by this Article 10 shall be paid by the party which controls the litigation, subject to any claims against the other party for breach of or indemnification under this Agreement or otherwise available at law or in equity. Any third party royalty payments required to be paid as the result of a judgment or settlement under this Article 10 shall be paid by the party controlling the suit subject to any claims against the other party for breach of or indemnification under this Agreement or otherwise available at law or in equity; PROVIDED, HOWEVER, in the case of a Licensed Product sold by TAP, if such third party royalty payments arise from the infringement of a patent having a claim or claims which cover the screening activities of LIGAND under the Research Program, the third party royalty payments shall be creditable against royalties owed LIGAND under this Agreement; PROVIDED, FURTHER, that in no event shall the credit taken for any third party royalties (notwithstanding the provisions of Section 7.2) be in excess of *** percent (*** %) of the royalty due LIGAND under this Agreement for Licensed Product sales which caused such third party royalty payments, subject to any claims for breach of or indemnification under this Agreement or otherwise

available at law or in equity.

ARTICLE 11
CONFIDENTIALITY

11.1 NONDISCLOSURE OBLIGATIONS. Except as otherwise provided in this Article 11 and subject to Article 12 hereof, during the term of the Agreement and for a period of *** thereafter, (a) both parties shall maintain in confidence information and data disclosed to the other party prior to the Effective Date or resulting from or related to the Research Program or the development of Research Compounds, Clinical Candidates or Licensed Products; and (b) both parties shall also maintain in confidence and use only for purposes of this Agreement all information and data supplied by the other party whether supplied prior to or after the Effective

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Date, which if disclosed in writing is marked "Confidential," or if disclosed orally is promptly thereafter confirmed in writing to be confidential.

11.2 PERMITTED DISCLOSURES. For purposes of this Article 11, information and data described in Sections 11.1 (a) or (b) above shall be referred to as "Information." To the extent it is reasonably necessary or appropriate to fulfill its obligations or exercise its rights under this Agreement, (w) a party may disclose Information it is otherwise obligated under this Article 11 not to disclose to its Affiliates, sublicensees, consultants, outside contractors and clinical investigators, on a need-to-know basis on condition that such persons or entities agree to abide by confidentiality obligations equivalent in scope to the confidentiality obligations contained in this Agreement and for as long a duration as is reasonably possible, up to the duration of TAP's obligations contained herein but in any case not less than *** years beyond the completion date of the third parties obligations; (x) a party or its Affiliates or sublicensees may disclose such Information to government or other regulatory authorities to the extent that such disclosure is reasonably necessary to obtain patents or authorizations to conduct clinical trials with, and to commercially market the Licensed Product, provided that the disclosing party shall request confidential treatment thereof; (y) a party may disclose Information as required by applicable law, regulation or judicial process, provided that such party shall give the other party prior written notice thereof and reasonable (as dictated by the circumstances) opportunity to object to any such disclosure or to request confidential treatment thereof; and (z) a party may disclose Information as permitted under Section 12.1. The obligation not to disclose or use Information shall not apply to any part of such Information that (i) is or becomes patented, published or otherwise part of the public domain other than by acts of the party obligated not to disclose such Information or its Affiliates or sublicensees in contravention of this Agreement; or (ii) is disclosed to the receiving party or its Affiliates or sublicensees by a third party, provided such Information was not obtained by such third party directly or indirectly from the other party under this Agreement on a confidential basis; or (iii) prior to disclosure under the Agreement, was already in the possession of the receiving party or any of its Affiliates or sublicensees, provided such Information was not obtained directly or indirectly from the other party under this Agreement; or (iv) is disclosed in a press release agreed to by both parties under Section 11.3 below. Notwithstanding anything to the contrary herein, TAP shall be entitled to disclose Information to Abbott Laboratories and Takeda Chemical Industries, Ltd. on condition that such entities agree to keep the Information confidential for the same time periods and to the same extent as TAP is required to keep the Information confidential, provided that TAP shall be responsible for any breach by Abbott Laboratories or Takeda Chemical Industries, Ltd. of any such confidentiality obligations.

11.3 PUBLICITY REVIEW. Except as required by applicable law, rule or regulation, neither party shall make any material statement to the public regarding the execution and the subject matter of this Agreement, the work under the Research Program or any other aspect of this Agreement, without the prior written consent of the other party, except for statements for which consent has

previously been obtained or which have been previously disclosed, or as otherwise set forth in this Agreement. Any of such statements may be made by LIGAND to a third party (a) to whom LIGAND is seeking to sell an equity interest, e.g., common or preferred stock or an instrument convertible into common or preferred stock, (b) from whom LIGAND is

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seeking a loan or (c) with whom LIGAND is engaging in merger or acquisition discussions; provided that such third party is bound under obligations of confidentiality similar to those of this Article 11. LIGAND and TAP shall not disclose any terms or conditions of this Agreement to any third party without the prior consent of the other party, except as set forth in this Section 11.3.

ARTICLE 12
PUBLICATION

12.1 NOTICE OF PUBLICATION. During the term of the Agreement, LIGAND and TAP each acknowledge the other party's interest in publishing certain of its results to obtain recognition within the scientific community and to advance the state of scientific knowledge. Each party also recognizes the mutual interest in obtaining valid patent protection and protecting business interests. Consequently, either party, its employees or consultants wishing to make a publication (including any oral disclosure made without obligation of confidentiality) relating to work performed by such party as part of the Research Program (the "Publishing Party") shall transmit to the other party (the "Reviewing Party") a copy of the proposed written publication or an outline of such oral disclosure at least *** days prior to submission for publication or oral disclosure. Both parties shall use reasonable best efforts to ensure that proposed written publication relating to work on Research Compounds either performed or sponsored by a party will be forwarded to the other party for review. In all instances, the Reviewing Party shall have the right (a) to propose modifications to the publication for patent, trade secret or commercial reasons and (b) to request a reasonable delay in or avoidance of publication in order to protect patentable information and trade secrets, the disclosure of which would materially affect the interests of the Reviewing Party under this Agreement. Subject to Article 13, a party shall have the right in its own discretion to seek patents on inventions made solely by its own employees.

12.2 TIMING OF PUBLICATION. If the Reviewing Party requests such a delay or avoidance, the Publishing Party shall delay submission or presentation of the publication for a period of *** to enable modification as provided in Section 12.1 or patent applications protecting each party's rights in such information to be filed in accordance with Article 13 below. Upon the expiry of *** from transmission to the Reviewing Party, the Publishing Party shall be free to proceed with the written publication or the presentation, respectively, unless the Reviewing Party has requested the delay or avoidance described above.

ARTICLE 13
PATENTS

13.1 OWNERSHIP OF INVENTIONS, APPLICATIONS FOR PATENT AND PATENTS. Subject to such rights as are granted under this Agreement, the ownership of Inventions (as defined herein) shall be as follows: (a) LIGAND shall own the entire right, title and interest in and to all Inventions (and patents thereon) made solely by its employees or others (other than TAP, TAP Affiliates, TAP employees and TAP consultants) acting on behalf of LIGAND in the course of performing work under the Research Program ("LIGAND Invention"); (b) TAP shall own the entire right,

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title and interest in and to all Inventions (and patents thereon) made solely by its employees or others (other than LIGAND, LIGAND Affiliates, LIGAND employees and LIGAND consultants) acting on behalf of TAP in the course of performing work under the Research Program ("TAP Invention"); (c) the parties shall jointly own the right, title and interest in and to all Inventions (and patents thereon) made jointly by their employees or others in the course of performing work under the Research Program ("Joint Invention"), subject to the rights granted each party under this Agreement; and (d) all other inventions made by employees or others acting on behalf of either party (or solely by such persons and third parties) or jointly with employees or others acting on behalf of the other party shall be owned in accordance with United States laws of inventorship. For purposes of this Section 13.1, "Inventions" means all inventions, discoveries and improvements or other technology directed at a Research Compound, Clinical Candidate or Licensed Product and all processes or uses relating thereto, whether or not patentable, together with all patent applications or patents based thereon, made during and as a result of the Research Program. Any dispute regarding the inventorship of a LIGAND Invention, TAP Invention or Joint Invention that cannot be resolved pursuant to Section 13.2, shall be resolved through the procedure of Article 20 in which the Neutral shall be an independent patent counsel, mutually acceptable to the parties. Each party shall promptly disclose to the other party and the JRC or the parties' agreed upon designated representatives the conception or reduction to practice under the Research Program of Inventions by employees or others acting on behalf of such party. Each party hereby represents and agrees that they will use their reasonable best efforts to have all employees and other persons acting on its behalf in performing its obligations under this Agreement to agree to be obligated under a binding written agreement or applicable law to assign to such party or its Affiliate all Inventions made or developed by such employee or other person. LIGAND further represents and agrees that it will use its reasonable best efforts to obtain patents within the Patent Rights specific for a Clinical Candidate in Full Development and/or a Licensed Product.

13.2 PATENT APPLICATIONS.

13.2.1 PRIORITY FILINGS. When a LIGAND Invention, TAP Invention or Joint Invention has been made under the Research Program, such invention shall be promptly disclosed to the other party and the JRC as well as each party's respective patent counsel. The JRC shall consult with each party's respective patent counsel in its determination of whether such invention is a LIGAND, TAP, or Joint Invention. If the JRC and each party's respective patent counsel all agree on the determination of inventorship, such determination shall be conclusive. If, however, the JRC and the party's respective patent counsel cannot agree as to whether an invention is a LIGAND, TAP, or Joint Invention, the status of such an invention shall be determined pursuant to Article 20 of this Agreement. If a Joint Invention has been made under the Research Program, the JRC shall designate independent patent counsel that shall file such application, which shall be in the name of both parties as assignees or applicants as appropriate. The party or independent patent counsel filing the application with respect to a Joint Invention made under the Research Program shall give the other party an opportunity to review the text of the application before filing, and in good faith shall consider and incorporate the reasonable requests of the other party. The party or independent patent counsel filing the application with respect to any LIGAND or TAP Invention or Joint Invention made under the Research Program shall supply the other party with a copy of the application as filed, together with notice of its filing date and serial number. In the event that the JRC is no longer in

existence and a determination regarding inventorship under this Section 13.2.1 is necessary, a designated representative of each party shall act in the place of the JRC under this Section 13.2.1.

13.2.2 FOREIGN FILING DECISIONS. No later than *** following the filing date of a priority patent application with respect to a Joint Invention made under the Research Program filed according to Section 13.2.1 above, the parties shall consult together, through the JRC, the parties' agreed upon designated representatives or otherwise, to determine whether such priority application with respect to such Joint Invention should be abandoned without

replacement; abandoned and refiled; prosecuted within the country of filing only; or used as originally filed the basis for a claim of priority under the Paris Convention for corresponding applications in or designating other countries, or otherwise determine a foreign filing strategy.

13.2.3 PROSECUTION AND MAINTENANCE. Subject to Section 13.2.1, LIGAND and TAP, as applicable, shall have the right, using commercially reasonable practices, to control the prosecution, issuance and maintenance of its Patent Rights with respect to each Invention made under the Research Program, and to select all patent counsel or other professionals to advise, represent or act for it in all matters relating to such Patent Rights. All costs incurred in connection therewith shall be borne by the party taking action with respect to such Patent Rights. In the case of Joint Inventions made under the Research Program, the JRC (or the parties' agreed upon designated representatives) shall designate the party which shall control the prosecution, issuance and maintenance of joint Patent Rights. The party controlling the prosecution, issuance and maintenance of such joint Patent Rights shall consider all reasonable requests of the other party with respect thereto. All costs incurred in connection with the prosecution, issuance and maintenance of such joint Patent Rights shall be *** . Each party shall inform the other party at regular intervals, or on request, about the status of all patent applications or patents for which it is responsible with respect to Inventions or Joint Inventions made under the Research Program.

In the event that LIGAND or TAP elects not to file a patent application on an Invention or Joint Invention made under the Research Program in any country, or decides to abandon any pending application or issued patent claiming an Invention or Joint Invention made under the Research Program in any country, it shall provide adequate notice to the other party and give the other party the opportunity to file and/or pay an issuance fee and/or maintain such application and/or patent at such other party's own expense; provided, however, that should LIGAND or TAP elect not to file a patent application on a solely owned invention based on an election by the owner to maintain the invention as a trade secret, the other party shall have no right to file an application for patent on such invention.

13.3 COOPERATION. Each party shall make reasonably available to the other party or its authorized attorneys, agents or representatives, its employees, agents or consultants necessary or appropriate to enable the other party to file, prosecute and maintain patent applications and/or resulting patents claiming all Inventions or Joint Inventions made under the Research Program, as set forth in Section 13.2 above, for a period of time sufficient for such party to obtain the assistance it needs from such personnel. Where appropriate, each party shall sign or cause to

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have signed all documents relating to said patent applications and/or patents at no charge to the other.

13.4 NO OTHER TECHNOLOGY RIGHTS. Except as otherwise provided in this Agreement, under no circumstances shall a party hereto or its Affiliates or sublicensees, as a result of this Agreement, obtain any ownership interest or other right in any Research Compounds, Clinical Candidates, Licensed Products, technology, trade secrets, patents, pending patent applications, products, vaccines, antibodies, cell lines or cultures, or animals of the other party, including items owned, controlled or developed by the other, or transferred by the other to such party at any time pursuant to this Agreement.

13.5 ENFORCEMENT OF PATENT RIGHTS. LIGAND and TAP each shall use good faith efforts to enforce their respective Patents Rights licensed hereunder, including their sole Inventions or Joint Inventions made under the Research Program, against infringers, and to consult with the other party both prior to and during said enforcement. Upon learning of infringement of such Patent Rights by a third party, LIGAND or TAP, as the case may be, promptly shall provide notice to the other party in writing of the fact and shall supply the other party with all evidence possessed by the notifying party pertaining to and establishing said infringement(s). The party whose Patent Rights allegedly are

being infringed shall have *** from the date of receipt of notice under this Section 13.5, or such lesser period of time if a *** period would result in material harm to, or the loss of a material right of, the other party (e.g., in the case of the filing of a paragraph 4 ANDA certification pursuant to 21 CFR 314.95 by one or more third parties), to file suit against at least one of the infringers, at its sole expense, following consultation with the other party. The party whose Patent Rights allegedly are being infringed shall not be obligated to bring or maintain more than one such suit at any time, unless the failure to bring more than one suit would result in material harm to, or the loss of a material right of the other party (e.g., in the case of the filing of a paragraph 4 ANDA certification pursuant to 21 CFR 314.95 by one or more third parties).

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If the party whose Patent Rights allegedly are being infringed does not, within *** of receipt of such notice or such lesser period of time if a *** period would result in material harm to, or the loss of a material right of, the other party (e.g., in the case of the filing of a paragraph 4 ANDA certification pursuant to 21 CFR 314.95 by one or more third parties), file suit to enforce its Patent Rights against at least one infringing party in a country of the Territory, the other party shall have the right to take whatever action it deems appropriate in its own name or, if required by law, in the name of the party whose Patent Rights allegedly are being infringed, to enforce such Patent Rights. LIGAND and TAP shall fully cooperate with each other in the planning and

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execution of any action to enforce Patent Rights. The other party shall be fully consulted during any enforcement action, including any settlement negotiations, and shall, to the extent legally permissible under the law, be entitled to join such action at its own expense. In addition, the other party shall be required to join such enforcement action at the enforcing party's expense if (i) this is requested by the enforcing party and (ii) is required to maintain any such enforcement action.

All monies recovered upon the final judgment or settlement of any suit under this Section 13.5 shall, after reimbursement of expenses, (a) to the extent such infringement occurred prior to First Commercial Sale, be shared by LIGAND and TAP in a ratio equal to *** percent (***%) for the party who pursued such action to *** percent (*** %) for the other party and (b) to the extent such infringement occurred after First Commercial Sale, be treated as *** with respect to the division between the parties.

The parties shall confer and agree upon strategies for enforcement of jointly owned Patent Rights. In the absence of any other agreement as to the enforcement of jointly owned Patent Rights, during the Research Program Term, TAP shall have the right to enforce jointly owned Patent Rights arising from sale of a Licensed Product within the TAP Field and LIGAND shall have the right to enforce jointly owned Patent Rights arising from sale of a product within the LIGAND Field. After expiration or termination of the Research Program Term, in the absence of any agreement between the parties, each party shall have the right to enforce the jointly owned Patent Rights at its own expense and retain any award of damages and expenses.

13.6 UNAUTHORIZED USE OF PATENT RIGHTS. Neither LIGAND nor TAP shall willfully take any action which would, directly or indirectly, infringe, or induce or contribute to the infringement of, one or more claims of any issued patent of the other party or any of its Affiliates, except to the extent such action is authorized by a license or other right granted under this Agreement.

13.7 SUMMARY OF INVENTIONS. The JRC shall maintain a summary of all Inventions disclosed to it under Section 13.1. The list will be updated at least annually and within one hundred eighty (180) days of the expiration or

termination of the Research Program Term.

ARTICLE 14
TERM AND TERMINATION

14.1 EXPIRATION. Unless terminated earlier by agreement of the parties or pursuant to this Article 14, this Agreement shall expire on the expiration of the last party's obligations to pay royalties under this Agreement.

14.2 LIMITED RIGHTS TO TERMINATE FOR BREACH. A party shall not have the right to terminate this Agreement for breach by the other party and shall seek remedies, both equitable and legal, for breach and in other disputes using the procedure of Article 20 except to the extent that Article 20 is limited by its own terms. If:

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(i) the Neutral, in accordance with the procedures set forth in Article 20 renders a ruling (an "Adverse Ruling") that a party has materially breached this Agreement by (x) materially failing to make milestone payments with respect to a Clinical Candidate or Licensed Product as and when due, or (y) materially failing to make royalty payments with respect to a Licensed Product as and when due, and

(ii) the breaching party has materially failed to comply with the terms of the Adverse Ruling within the time period specified therein for compliance or, if no time period is stated, within *** thereafter, and

(iii) the other party has served notice upon the breaching party to undertake the actions specified to comply with the terms of the Adverse Ruling and the breaching party has materially failed, within *** of such notice, to undertake such action, then the other party shall have the right

(A) where the basis for the Adverse Ruling is the breaching party's material failure to make the milestone payments with respect to a Clinical Candidate or Licensed Product as and when due, to terminate any license granted by it under this Agreement with respect to such Clinical Candidate or Licensed Product by delivering written notice to the breaching party within *** after expiration of the *** period under Section 14.2(iii) above, or

(B) where the basis for the Adverse Ruling is the breaching party's material failure to make the royalty payments with respect to a Licensed Product to terminate any license granted by it under this Agreement with respect to such Licensed Product by delivering written notice to the breaching party within *** after expiration of the *** period under paragraph 14.2(iii) above, and where, according to the Adverse Ruling, royalties should have been paid with respect to sales of such Licensed Product but were not paid. Termination of the Agreement does not relieve either party of the obligation to make any payments that have accrued, but not yet been paid, at the time of termination.

14.3 EFFECT OF TERMINATION. In the event of termination hereunder by TAP, all licenses granted under this Agreement to TAP for Clinical Candidates which are at that time in Full Development or commercialization, or Research Compounds selected by TAP in accordance with Sections 6.4 or 6.5 shall not be affected and shall continue in full force and effect, subject to TAP's obligation to make milestone and royalty payments pursuant to Article 7 herein, and TAP shall have the right to exercise all such licenses. All licenses granted under this Agreement to LIGAND shall automatically terminate upon such

termination by TAP, except with respect to any compounds in development by LIGAND pursuant and subject to LIGAND'S obligations

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under Sections 6.3, 6.4 and 6.5 herein. In the event of termination hereunder by LIGAND, all licenses granted under this Agreement to LIGAND shall not be affected and shall continue in full force and effect, and LIGAND shall have the right to exercise all licenses provided under this Agreement. All licenses granted under this Agreement to TAP shall automatically terminate upon such termination by LIGAND. Termination of this Agreement by LIGAND shall not affect TAP's obligations to pay milestones on any Clinical Candidates for which TAP retains a license hereunder or royalties on Licensed Products resulting therefrom. The provisions of Articles 1 and 2, Sections 3.2, 3.4, 3.5, 3.6, 3.7, 5.2, 5.3 and 5.4, and Articles 6-15 and 18-21, as they may apply, shall survive the expiration or termination of the Agreement. Any rights and obligations which have accrued prior to termination or expiration of this Agreement in any respect shall survive such termination or expiration.

14.4 BANKRUPTCY. Either party shall have the right to terminate this Agreement by delivering sixty (60) days prior written notice to the other party in the event of the other party's bankruptcy (not to include reorganization) or insolvency, provided that applicable federal bankruptcy laws shall apply.

ARTICLE 15
INDEMNITY

15.1.1 DIRECT INDEMNITY. Each party shall indemnify and hold the other party, its Affiliates and sublicensees harmless, and hereby forever releases and discharges the other party, its Affiliates and sublicensees, from and against all claims, demands, liabilities, damages and expenses, *** (collectively, "Liabilities") arising out of ***

15.2 OTHER INDEMNITY. Each party shall indemnify and hold the other party, its Affiliates and sublicensees harmless from and against all Liabilities suffered or incurred in connection with ***

15.3 PROCEDURE. A party (the "Indemnitee") that intends to claim indemnification under this Article 15 shall promptly notify the other party (the "Indemnitor") of any Liability or action in respect of which the Indemnitee or any of its Affiliates or sublicensees intend to claim such indemnification, and the Indemnitor shall have the right to participate in, and, to the extent the Indemnitor so desires, jointly with any other Indemnitor similarly noticed, to assume the defense thereof with counsel selected by the Indemnitor; PROVIDED, HOWEVER, that an Indemnitee shall have the right to retain its own counsel, with the fees and expenses of such counsel to be paid by the Indemnitee, if representation of such Indemnitee by the counsel retained by the Indemnitor would be inappropriate due to actual or potential differing interests between such Indemnitee and any other party represented by such counsel in such proceedings. The indemnity agreement in this Article 15 shall not apply to amounts paid in settlement of any loss, claim,

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damage, liability or action if such settlement is effected without the consent of the Indemnitor, which consent shall not be withheld unreasonably. The failure to deliver notice to the Indemnitor within a reasonable time after the commencement of any such action, if prejudicial to its ability to defend such action, shall relieve such Indemnitor of any liability to the Indemnitee under this Article 15, but the omission so to deliver notice to the Indemnitor will not relieve it of any liability that it may have to any Indemnitee otherwise

than under this Article 15. The Indemnitee under this Article 15, its employees and agents, shall cooperate fully with the Indemnitor and its legal representatives in the investigation of any action, claim or liability covered by this indemnification.

15.4 INSURANCE. TAP shall maintain, through self-insurance or otherwise, insurance with respect to the development, manufacture and sale of Licensed Products in such amount as TAP customarily maintains with respect to its other products. TAP shall maintain such insurance for so long as it continues to develop, manufacture or sell any Licensed Products, and thereafter for so long as TAP maintains insurance for itself covering such manufacture or sales. The requirement to maintain insurance shall apply MUTATIS MUTANDIS to LIGAND in the circumstance where LIGAND acquires the right under this Agreement to commercialize products.

15.5 INDEMNITY EXCLUSION. A party that relinquishes rights to a Research Compound, Clinical Candidate or Licensed Product to the other party shall not be obligated to indemnify the other party, its Affiliates or sublicensees under Sections 15.1 and 15.2 with respect to their use of information obtained from the relinquishing party as a result of the relinquishing of rights to the Research Compound, Clinical Candidate or Licensed Product.

ARTICLE 16
FORCE MAJEURE

Neither party shall be held liable or responsible to the other party nor be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any term of this Agreement when such failure or delay is caused by or results from causes beyond the reasonable control of the affected party including but not limited to fire, floods, embargoes, war, acts of war (whether war be declared or not), insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, acts of God or acts, omissions or delays in acting by any governmental authority or the other party.

ARTICLE 17
ASSIGNMENT

This Agreement may not be assigned or otherwise transferred, nor, except as expressly provided hereunder, may any right or obligations hereunder be assigned or transferred *** ; PROVIDED, HOWEVER, that *** may, without such consent, assign this Agreement and its rights and obligations hereunder in connection *** . Any permitted assignee shall assume all obligations of its assignor under this Agreement.

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ARTICLE 18
NOTIFICATION OF PATENT TERM RESTORATION

LIGAND or TAP, as the case may be, shall notify the other party of (a) the issuance of each U.S. patent, or foreign patent where extension is possible, included within the Patent Rights, giving the date of issue and patent number for each such patent, and (b) each notice pertaining to any patent included within the Patent Rights which it receives as patent owner pursuant to the Drug Price Competition and Patent Term Restoration Act of 1984 (hereinafter called the "Act") or equivalent foreign laws, including notices pursuant to ss.ss. 101 and 103 of the Act from persons who have filed an abbreviated NDA ("ANDA"). Such notices shall be given promptly, but in any event within five (5) calendar days of each such patent's date of issue or receipt of each such notice pursuant to the Act, whichever is applicable. LIGAND or TAP, as the case may be, shall discuss relevant issues and decide upon appropriate action with respect to

patent term restoration under the Act, any allegations of failure to show due diligence and all awards of patent term restoration (extensions) with respect to the Patent Rights. Likewise, LIGAND or TAP, as the case may be, shall inform the other party of patent extensions and periods of data exclusivity in the rest of the world regarding any Licensed Product. In the instance where a TAP Licensed Product is covered by only one (1) LIGAND patent, and the same LIGAND patent covers additional products of other LIGAND licensees, then TAP shall have priority to obtain the benefit of a patent term restoration of said LIGAND patent, provided that TAP licensed said LIGAND patent prior to the other LIGAND licensee(s). In cases where there is more than one patent within the Patent Rights covering a Research Compound, TAP shall have the right, at its sole discretion, to choose which of such patents to apply for patent term restoration under the Act or equivalent foreign law.

ARTICLE 19
SEVERABILITY

Each party hereby agrees that it does not intend to violate any public policy, statutory or common laws, rules, regulations, treaty or decision of any government agency or executive body thereof of any country or community or association of countries. In any term or provision of this Agreement is held to be invalid, illegal or unenforceable by a court or other governmental authority of competent jurisdiction, such invalidity, illegality or unenforceability shall not affect any other term or provision of this Agreement, which shall remain in full force and effect. The holding of a term or provision to be invalid, illegal or unenforceable in a jurisdiction shall not have any effect on the application of the term or provision in any other jurisdiction.

ARTICLE 20
DISPUTE RESOLUTION

20.1 The parties recognize that from time to time a dispute may arise relating to either party's rights or obligations under this Agreement. The parties agree that any such dispute, except one having to do with the scope, enforceability, infringement or validity of a patent or trade secret, shall be resolved by the Alternative Dispute Resolution ("ADR") provisions set forth herein, the result of which shall be binding upon the parties.

20.2 To begin the ADR process, a party first must send written notice of the dispute to the other party for attempted resolution by good faith negotiations between their respective presidents (or their designees) of the affected subsidiaries, divisions, or business units within *** after such notice is received (all references to "days" in this ADR provision are to calendar days). If the matter has not been resolved within *** of the notice of dispute, or if the parties fail to meet within such *** either party may initiate an ADR proceeding as provided herein. The parties shall have the right to be represented by counsel in such a proceeding.

20.2.1 To begin an ADR proceeding, a party shall provide written notice to the other party of the issues to be resolved by ADR. Within *** after its receipt of such notice, the other party may, by written notice to the party initiating the ADR, add additional issues to be resolved within the same ADR.

20.2.2 Within *** following receipt of the original ADR notice, the parties shall select a mutually acceptable neutral party (hereinafter "Neutral") to preside in the resolution of any disputes in this ADR proceeding. If the parties are unable to agree on a mutually acceptable Neutral within such period, either party may request the President of the CPR Institute for Dispute Resolution ("CPR"), 366 Madison Avenue, 14th Floor, New York, New York 10017, to select a Neutral pursuant to the following procedures:

(a) The CPR shall submit to the parties a list of not less than five (5) candidates within fifteen (15) days after receipt of the request, along with a CURRICULUM VITAE for each candidate. No candidate shall be an employee, director, shareholder, distributor, licensor, licensee,

or have any other direct affiliation with either party or any of their subsidiaries or Affiliates or Abbott Laboratories or Takeda Chemical Industries, Ltd.

(b) Such list shall include a statement of disclosure by each candidate of any circumstances likely to affect his or her impartiality.

(c) Each party shall number the candidates in order of preference (with the number one (1) signifying the greatest preference) and shall deliver the list to the CPR within fifteen (15) days following receipt of the list of candidates. If a party believes a conflict of interest exists regarding any of the candidates, that party shall provide a written explanation of the conflict to the CPR along with its list showing its order of preference for the candidates. Any party failing to return a list of preferences on time shall be deemed to have no order of preference.

(d) If the parties collectively have identified fewer than three (3) candidates deemed to have conflicts, the CPR immediately shall designate as the Neutral the candidate for whom the parties

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collectively have indicated the greatest preference. If a tie should result between two candidates, the CPR may designate either candidate. If the parties collectively have identified three (3) or more candidates deemed to have conflicts, the CPR shall review the explanations regarding conflicts and, in its sole discretion, may either (i) immediately designate as the Neutral the candidate for whom the parties collectively have indicated the greatest preference, or (ii) issue a new list of not less than five (5) candidates, in which case the procedures set forth in Sections 20.2(a) - 2(d) shall be repeated.

20.2.3 In the event of a dispute between the parties relating to the calculation of any royalties or the amount of other consideration payable under this Agreement (including, without limitation, the results of any audit conducted on behalf of a party pursuant to this Agreement), then, in addition to the procedure set forth in Section 20.2.2 above, the Neutral shall be a partner or full member of an internationally recognized certified public accounting firm which is not an auditing firm for either party and has not provided material services to either party during the last two (2) year period prior to the date of ADR initiation.

20.3 No earlier than *** or later than *** after selection, the Neutral shall hold a hearing to resolve each of the issues identified by the parties. Each party may be represented by counsel. Prior to the hearing the parties shall be entitled to engage in discovery under procedures of the Federal Rules of Civil Procedure, provided, however, that a party may not submit more than *** written interrogatories or take more than *** depositions. There shall not be any, and the Neutral shall not permit, any discovery within *** of the hearing. The Neutral shall have sole discretion regarding the admissibility of evidence and conduct of the hearing. The ADR proceeding shall take place at a location agreed upon by the parties. If the parties cannot agree, the Neutral shall designate a location other than the principal place of business of either party or any of their subsidiaries or Affiliates or Abbott Laboratories or Takeda Chemical Industries, Ltd.

20.4 At least *** prior to the hearing, each party shall submit the following to the other party and the Neutral:

(a) a copy of all exhibits on which such party intends to rely in any oral or written presentation to the Neutral;

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(b) a pre-hearing brief (up to 20 pages), and a proposed disposition of the dispute (up to 5 pages). The proposed disposition shall be limited to proposed rulings and remedies on each issue, and shall contain no argument on or analysis of the facts or issues; provided, however, that the parties will not present proposed monetary remedies.

(c) a list of any witnesses such party intends to call at the hearing, and a short summary of the anticipated testimony of each witness;

Except as expressly set forth in Sections 20.3 and 20.4(a) - 4(c), no additional discovery shall be required or permitted by any means.

20.5 The hearing shall be conducted on up to five (5) consecutive days and shall be governed by the following rules:

(a) Each party shall be entitled, but not required, to make an opening statement, to present regular and rebuttal testimony, documents or other evidence, to cross-examine witnesses, and to make a closing argument. Cross-examination of witnesses shall occur immediately after their direct testimony, and cross-examination time shall be charged against the party conducting the cross-examination.

(b) The party initiating the ADR shall begin the hearing and, if it chooses to make an opening statement, shall address not only issues it raised but also any issues raised by the responding party. The responding party, if it chooses to make an opening statement, also shall address all issues raised in the ADR. Thereafter, the presentation of regular and rebuttal testimony and documents, other evidence, and closing arguments shall proceed in the same sequence.

(c) Except when testifying, witnesses shall be excluded from the hearing until closing arguments.

(d) Settlement negotiations, including any statements made therein, shall not be admissible under any circumstances. Affidavits prepared for purposes of the ADR hearing also shall not be admissible. As to all other matters, the neutral shall have sole discretion regarding the admissibility of any evidence.

20.6 Within *** following completion of the hearing, each party may submit to the other party and the Neutral a post-hearing brief in support of its proposed rulings and remedies, provided that such brief shall not contain or discuss any new evidence and shall not exceed ten (10) pages. This page limitation shall apply regardless of the number of issues raised in the ADR proceeding.

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20.7 The Neutral shall rule on each disputed issue within *** following completion of the hearing. Such ruling shall adopt in its entirety the proposed ruling and remedy of one of the parties on each disputed issue but may adopt one party's proposed rulings and remedies on some issues and the other party's proposed rulings and remedies on other issues. The Neutral shall not

issue any written opinion or otherwise explain the basis of the ruling.

20.8 The Neutral shall be paid a reasonable fee plus expenses. These fees and expenses, along with the reasonable legal fees and expenses of the prevailing party (including all expert witness fees and expenses), the fees and expenses of a court reporter, and any expenses for a hearing room, shall be paid as follows:

(a) If the Neutral rules in favor of one party on all disputed issues in the ADR, the losing party shall pay *** % of such fees and expenses.

(b) If the Neutral rules in favor of one party on some issues and the other party on other issues, the Neutral shall issue with the rulings a written determination as to how such fees and expenses shall be allocated between the parties. The Neutral shall allocate fees and expenses in a way that bears a reasonable relationship to the outcome of the ADR, with the party prevailing on more issues, or on issues of greater value or gravity, recovering a relatively larger share of its legal fees and expenses.

20.9 The rulings of the Neutral and the allocation of fees and expenses shall be binding, non-reviewable, and non-appealable, and may be entered as a final judgment in any court having jurisdiction.

20.10 Except as provided in Section 20.9 or as required by law, the existence of the dispute, any settlement negotiations, the ADR hearing, any submissions (including exhibits, testimony, proposed rulings, and briefs), and the rulings shall be deemed Information. The Neutral shall have the authority to impose sanctions for unauthorized disclosure of Information.

ARTICLE 21
MISCELLANEOUS

21.1 NOTICES. Any consent, notice or report required or permitted to be given or made under this Agreement by one of the parties hereto to the other shall be in writing, delivered personally or by facsimile (and promptly confirmed by personal delivery or courier), or internationally recognized overnight courier, addressed to such other party at its address indicated below, or to such other address as the addressee shall have last furnished in writing to the addressor and (except as otherwise provided in this Agreement) shall be effective upon receipt by the addressee.

If to LIGAND: LIGAND Pharmaceuticals Incorporated
10275 Science Center Drive
San Diego, California 92121

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Attention: President
With a copy to: General Counsel
Fax: (858) 550-1825

If to TAP: TAP Pharmaceutical Products Inc.
675 North Field Drive
Lake Forest, Illinois 60045
Attention: President
With a copy to: General Counsel
Fax: (847) 582-5007

21.2 APPLICABLE LAW. The Agreement shall be governed by and construed in accordance with the laws of the State of New York, without reference to its conflict of laws provision, except as set forth in the immediately following sentence, and shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods. The status of information claimed

as a trade secret shall be governed by the law of the jurisdiction in which the party claiming the information as a trade secret has its principal place of business. As used in this Agreement, the term "trade secret" when applied to information claimed by TAP to be a trade secret shall have the meaning ascribed under the Illinois Trade Secrets Act, and when applied to information claimed by LIGAND to be a trade secret shall have the meaning ascribed under the California Uniform Trade Secrets Act, Cal. Un. Code.

21.3 ENTIRE AGREEMENT. This Agreement contains the entire understanding of the parties with respect to the subject matter hereof. All express or implied agreements and understandings, either oral or written, including the Confidential Disclosure Agreements entered into between the parties on July 19, 2000, as amended February 22, 2001 and February 22, 2001, heretofore made are expressly merged in and made a part of this Agreement. This Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by both parties hereto.

21.4 HEADINGS. The captions to the several Articles and Sections hereof are not a part of this Agreement, but are merely guides or labels to assist in locating and reading the several Articles and Sections hereof.

21.5 INDEPENDENT CONTRACTORS. It is expressly agreed that LIGAND and TAP shall be independent contractors and that the relationship between the two parties shall not constitute a partnership, joint venture or agency. Neither LIGAND nor TAP shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other, without the prior consent of the party to do so.

21.6 U.S. EXPORT LAWS AND REGULATIONS. Each party warrants and represents to the other that it does not intend to, nor will it export from the United States or re-export from any foreign country, or permit a third party to export or re-export technology or technical information of the other party, to a country where such export or re-export would be in violation of U.S. Export Administration Regulations.

21.7 WAIVER. The waiver by either party hereto of any right hereunder or the failure to perform or of a breach by the other party shall not be deemed a waiver of any other right hereunder or of any other breach or failure by said other party whether of a similar nature or otherwise.

21.8 COUNTERPARTS. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first set forth above.

TAP PHARMACEUTICAL PRODUCTS INC.	LIGAND PHARMACEUTICALS INCORPORATED
By: /S/ H. THOMAS WATKINS	By: /S/ DAVID E. ROBINSON

H. Thomas Watkins	David E. Robinson
Title: President	Title: President & Chief Executive Officer
Date: 7/5/01	Date: 6/22/01

EXHIBIT A
RESEARCH PROGRAM
DRAFT TECHNICAL OPERATING PLAN

Ligand-TAP SARM Research Program
Technical Operating Plan

A. Overview

The proposed Research Program will be an integrated drug discovery program, focusing on the identification and development of novel, non-steroidal androgen receptor modulators, pursuant to the terms of the Agreement. The Research Program is anticipated to run for an initial term of 36 months, with potential to extend for up to two (2) additional one (1)-year terms.

This document sets forth a technical operating plan (the "Technical Operating Plan") for the Research Program research and development activities, including additional disease-model profiling & development support as required for LGD2226, identification & profiling of a Back-up candidate to LGD2226, and discovery of second-generation Research Compounds targeted for indications in the TAP Field. Capitalized terms used but not otherwise defined herein have the meanings assigned to them in the Agreement.

B. Goals, Rationale, and Product Profile(s)

1. Goals

***

2. Rationale

***

3. Product Profiles

*** Portions of this page have been omitted pursuant to a request for Confidential Treatment and filed separately with the Commission.

***

C. Research Program Headcount and Operations

***

1. Research Program Headcount

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<TABLE>
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PROPOSED SARM RESEARCH PROGRAM RESOURCING -

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2. Research Team

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***

3. Joint Research Committee (JRC)

***

D. Research Program *** Objectives

***

E. Research Plan

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Ligand-TAP SARM Research Program
Technical Operating Plan

DRAFT 2ND-GENERATION SARM DISCOVERY FLOWSCHEME

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EXHIBIT B
LIGAND'S SELECTIVE ANDROGEN
RECEPTOR MODULATORS

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