

LUDWIG  
INSTITUTE  
FOR  
CANCER  
RESEARCH

**ANNUAL REPORT**  
**FOR THE YEAR 2006**





## A Statement by the Founder

In creating this organization I have been guided by certain principles which throughout my life I have found to be highly effective. Success in any complex enterprise consists in bringing the best minds to bear on each problem, in providing the best resources possible, and in putting each concept into practice whenever and wherever the opportunities are most favourable. I believe firmly in the value of applying these principles in grappling with tasks as momentous as finding ways to relieve the human suffering caused by cancer.

Why should this undertaking be international? The rare vision and ability needed in the battle against cancer are not limited by frontiers, and the scientists who possess these gifts must be sought wherever they are to be found. Nor does cancer reveal itself in the same guise in every nation, but strikes different populations in different forms. Yet despite the growing necessity for concerted worldwide effort, I find no agency, which has both the truly international scope and the substantial resources, which I deem essential for a comprehensive attack on human cancer.

In my judgment the ultimate conquest of this frightful disease is not yet in sight, and the same view is held by most informed physicians and scientists in bio-medical research. In contrast to those who would yield to undue optimism, and who hope for too much from present programs,



I am persuaded that eventual mastery of cancer will come only from intense and unremitting scientific exploration over many decades. This should not be hindered by the changing policies of governments and the vagaries of public interest. Accordingly it is my intention that the Institute shall be so structured as to ensure secure and continuing support for the attainment of its aims.

The elimination of cancer will surely rank as one of man's greatest and uncontroversial achievements. That day may be long delayed. How long we cannot tell. But I do not doubt that it will surely come.

D. K. Ludwig

December 17, 1974

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Custodian Bank	Boston Safe Deposit & Trust Co., Boston
Company registration numbers	
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Australia	A.R.B.N. 001 379 344
Belgium	BE 0418.853.522
Great Britain	FC007198
United States of America	EIN 23-712 1131

## Ludwig Institute for Cancer Research

### **Board of Directors**

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Mr. Alfred Berger  
Mr. Georges-André Cuendet (to June)  
Mr. Olivier Dunant  
Mr. John D. Gordan III  
Dr. Adolf E. Kammerer  
Mr. Pierre Languetin  
Mr. Edward A. McDermott Jr.  
Sir Derek Roberts  
Prof. Jane Royston

*Secretary to the Board*

Mr. Richard D.J. Walker

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(from June)  
Mr. Georges-André Cuendet (to June)  
Dr. Adolf E. Kammerer  
Mr. Pierre Languetin

### **- Budget & Finance Committee**

Sir Derek Roberts, Chairman  
Dr. Adolf E. Kammerer  
Prof. Jane Royston

### **- Compensation Committee**

Mr. Olivier Dunant, Chairman  
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### **- Executive Committee**

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Mr. Edward A. McDermott Jnr.

### **Scientific Advisory Committee (SAC)**

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Dr. José Baselga (from July)  
Dr. Douglas T. Fearon  
Dr. Samuel Hellman  
Dr. Lucille Shapiro  
Dr. Phillip Sharp

*Secretary to the SAC*

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## Ludwig Institute for Cancer Research

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## **Aims and Principles**

The purpose of the Institute is to originate and conduct incisive long-range research programs, to be carried out on a continuing basis in conjunction with hospitals in established medical centres, directed to the ultimate goal of eradicating cancer. It is neither the province nor the intention of the Institute to award grants for the conduct of research by others, - in fact its charter precludes this. Rather, substantially all research financed by the Institute is carried out by the Institute itself through its own appointed research staff or through laboratory and clinical collaborations involving Institute research staff and outside academic investigators. The research staff of the Institute are organized in Branches and Clinical Centres. Nine Branches and one Clinical Centre are in operation – one Branch and one Centre in Australia; one Branch in Belgium; one in Brazil; one in Switzerland; two in Sweden; one in Great Britain and two in the United States of America. Each Branch is focused on a program of research defined by the Branch Director in relation to the overall objectives of the Institute. The Branches are established in association with University Hospitals to facilitate close collaboration between laboratory and clinical scientists and to provide the clinical resources required for Ludwig Institute programs. The Branches are staffed so that Branch Directors can address complex biological problems related to cancer with a critical mass of interactive scientists having expertise in several scientific disciplines. Branch staffs vary in size from 17 to 145. The Institute employs around 870 scientists, clinicians and support personnel worldwide. Support of the Branches' research is principally provided by the Institute and supplemented with governmental and other grants. During 2006, the Institute expended CHF 126 million and since its inception over CHF 2.0 billion on medical research.

## **Legal status**

The Institute was incorporated in 1971 in Zurich, Switzerland as a not-for-profit corporation. Based on its present activities, the Institute is exempt from direct taxes on income and capital gains in all territories in which it operates.

## **Statutes**

The activities of the Institute are governed by its Statutes. The exclusively charitable purpose contained therein is for the Institute to engage itself directly in continuous active conduct of medical research, especially in the field of cancer. This research is to be for the benefit of the public and carried out in conjunction with hospitals which provide medical care and are organized and operated exclusively for charitable purposes.

## **Organization and Investments**

The Institute's Endowment is held for its benefit by a separate legal entity, LICR Fund, Inc. ("the Fund"), a not-for-profit Delaware, USA corporation. The Fund was established exclusively to further the charitable and scientific purposes of the Ludwig Institute by receiving, holding and investing funds on behalf of, and remitting funds to the Institute. The Fund is a membership corporation with no authority to issue capital stock. The Board of Directors of the Institute are the Members of the Fund and constitute the Board of Directors of the Fund.

The Endowment held by the Fund is invested on its behalf by investment managers appointed by the Board of Directors and Fund management. Substantially all of the investment instruments are held by the Custodian Bank in the name of the Fund. Income and principal of funds of the Fund can only be applied to the Ludwig Institute.

### Scientific Report

The Ludwig Institute for Cancer Research (LICR) celebrated its 35<sup>th</sup> anniversary in 2006. Since its founding, LICR has grown to become the largest international non-profit institute dedicated to the fight against cancer. The research of the Institute is carried out at research Branches in seven countries around the world, and also in cooperation with an international network of affiliated scientists and clinicians. This organizational structure maximizes the Institute's opportunities to interact with a broad range of different laboratory and clinical environments, and facilitates the worldwide engagement of outstanding scientists.

The research orientation of each LICR Branch is defined by the Branch Director in the context of the overall objectives of the Institute. Each Branch is staffed to enable it to address complex biological problems related to cancer, and provide a critical mass of scientists with expertise in relevant scientific disciplines. Branches have formal associations with University Hospitals, which allows not only a close interaction between laboratory and clinical scientists, but also the provision of clinical resources required for basic research and LICR's early-phase clinical trials. In 2006, a new research site and concept were introduced in the form of the Melbourne Centre for Clinical Sciences. The Center will have a primary focus on clinical, rather than laboratory, sciences and will typically be located within a hospital. This is in contrast to Branches, which have a primary focus on basic laboratory sciences and are typically located within a university or research institute. Senior staff at the Centers will often hold joint appointments as practicing clinicians. Centres will be the principal sites for LICR clinical trials, with affiliated 'Clinical Sites' engaged periodically to enhance patient recruitment for specific projects or Programs.

The quality of research conducted by LICR scientists is monitored on an ongoing basis by the LICR Scientific Directorate and Scientific Advisory Committee, and is independently assessed through external peer-review processes. A commitment to programmatic-based research has resulted in the establishment of numerous collaborations between Branches and Affiliates, individual investigators who are experts in fields that complement LICR's research objectives. All of these activities extend the Institute's global opportunities for cancer research, in accordance with the wishes of its founder, Mr. Daniel K. Ludwig.

The following scientific progress report summarizes examples of LICR's research, based on studies published in 2006 by LICR Branch staff members and Affiliates. More detailed information on the Institute's research can be found in the "Annual Research Highlights Report" and at [www.licr.org](http://www.licr.org).

### Cancer Initiatives

A vast amount of our understanding about cancer has come from the detailed and systematic analysis of the structure, function and relationships of single molecules. There is still much to be learned from this approach of carefully dissecting pathways and using cultured cells and/or model organisms to make and explore cancer research findings. However, LICR believes that it is imperative for continued progress in our understanding and control of human cancer to study the disease in light of the reality that it affects human tissues composed of multiple, whole human cells. We now know that cancer is a term that describes multiple diseases. And we have reached the point where tumours must be considered as organs, with each tumour type having its own structure and environment. LICR believes that further progress in cancer control will come from comprehensive studies of specific tumour-types in the cancer patient. LICR has established 'Cancer Initiatives,' through which LICR investigators meet and share data and findings relevant to the tumour-type being studied. Investigators in the Cancer Initiatives have access to pedigreed tumour samples that are matched with normal samples from the same patient in many cases. The objective of each Cancer Initiative is no less than to understand the tumour in its entirety.

### ***Breast Cancer Initiative***

*Breast cancer is the most common form of cancer in women, worldwide, and is the second most common cause of cancer death in women (after lung cancer). Many advances have been made in breast cancer survival, with early diagnosis, better adjuvant therapies, and increased understanding of the impact of life-style on prevention, all having an effect on mortality and morbidity in the developed world. However, developing and Third World countries still have enormous sociological and economic burdens from breast cancer. The following several studies illustrate some of the work published by LICR investigators in 2006 in the Breast Cancer Initiative.*

Investigators from the Uppsala Branch used sophisticated proteomics technologies to attempt to identify new markers for breast and ovarian cancers. Comparing blood samples from 79 women with breast cancer, 39 women with ovarian cancer and 31 women without cancer, the team found three proteins that were aberrantly expressed only in the samples from women with cancer. Further testing on the validity of these markers for cancer diagnosis is required. However, the results are encouraging for the development of relatively non-invasive, multi-parameter diagnostic/prognostic tests for cancer using blood protein profiling.

A collaboration between the London University College and Sao Paulo Branches has been investigating DNA methylation in breast cancer samples. DNA methylation, a chemical modification of DNA in which methyl groups are added to the DNA base, cytosine (C), helps to maintain genome stability and normal gene expression. Hypomethylation, a decrease in DNA methylation, is associated with genome instability and is frequently found in tumour samples. The LICR team compared the methylation profiles of normal and breast cancer samples, and identified a novel, differentially DNA fragment, SATR-1, that was hypomethylated in 86% of the breast tumours sampled. Assessment of the methylation status of the DNA around this fragment showed variable hypomethylation. The team's hypothesis – based on statistical analyses of the degree of hypomethylation – is that SATR-1 hypomethylation frequently occurs in the early stages of breast tumour development. Identification of early-stage changes might allow the development of more effective diagnostic tests than currently available.

A landmark paper from the Breast Cancer Initiative has established the 'transcriptome' (gene expression profile) of normal and malignant epithelial breast cells. The LICR team – composed of investigators from the Lausanne and London University College London Branches, the LICR New York Office and Affiliates in London – purified and enriched specific cell types from normal and cancer samples. The team then used five different expression profiling technologies to identify gene transcripts differentially expressed in the samples. Consolidating the data from all five profiling experiments – the first study to utilize such an extensive multi-platform approach – allowed the investigators to produce and refine a master data set that provides a basis for the identification of new targets for breast cancer diagnosis, prognosis and therapy.

### **Biochemistry**

Cells interact with their environment by sending and receiving signals that initiate and terminate cellular processes such as cell division, growth, differentiation, migration and survival. External signals activate receptors on the cell surface, which in turn activate intracellular signal transduction cascades that regulate cellular processes. Cancer cells have abnormal signal generation and reception, which allow them to grow out of control, escape apoptosis, and invade other tissues.

## Growth Factor Signalling - Transforming Growth Factor $\beta$

*The transforming growth factor  $\beta$  (TGF $\beta$ ) family is a group of 'ligands' (growth factor proteins) that bind to receptors on the cell surface and activate a multiplicity of normal cell processes. TGF $\beta$  signalling also contributes to cancer cell invasiveness and metastasis. TGF $\beta$ , the archetype of the ligand family, activates downstream Smad proteins that regulate the expression of gene networks that are required for cell proliferation, differentiation and apoptosis. LICR investigators are dissecting the signalling pathways downstream of TGF $\beta$  and the other ligands in the family in search of new approaches for cancer diagnosis and control.*

TGF $\beta$  signalling phosphorylates the 'R-Smad' proteins, Smad2 and Smad3, which form a complex with Smad4 and translocate to the cell nucleus. The R-Smads, in fact, shuttle in and out of the nucleus in response to changes in TGF $\beta$  signalling. LICR investigators from the Uppsala Branch this year discovered a novel nuclear export pathway for Smad3, which is mediated by a protein sequence common to several other Smad proteins. The export relies on the protein, exportin4, which also exports a specific cofactor involved in protein translation, and the Ran GTPase, an enzyme that hydrolyses GTP.

Once in the nucleus, the Smad complex interacts with transcription coactivators and/or corepressors to regulate TGF $\beta$  target gene expression. A second team from the Uppsala Branch has discovered that the coactivators, p300 and CBP, acetylate (add an acyl group to) Smad2 and Smad3 in a TGF $\beta$ -dependent manner. Another coactivator, PCAF (p300/CBP associated factor), acetylates only Smad2. The p300/CBP complex regulates a large number of transcription factors, including some of those involved in cell cycle progression. The acetylation of R-Smads promotes their DNA-binding affinity, thereby enhancing Smad-mediated transcriptional activity. Acetylation of Smad molecules by coactivators could represent a new approach for regulating TGF $\beta$  signalling.

Smad7 inhibits Smad signalling by binding to activated TGF $\beta$  receptors and preventing activation of the R-Smads. Several years ago, investigators from the Uppsala Branch showed that TGF $\beta$  induces apoptosis (programmed cell death) via Smad7 and the signalling protein, p38. Further investigation by the team has now shown that TGF $\beta$ -induced apoptosis is also dependent on p53, a tumour-suppressor protein that regulates cell growth and proliferation, and causes apoptosis when DNA damage is detected during the cell cycle. This TGF $\beta$ /p53-mediated apoptosis is dependent on p38, Smad7 and another protein that responds to DNA damage during the cell cycle, ATM. The study's results suggest that Smad7 acts as a scaffold protein to facilitate the formation of the p38/p53/ATM/Smad7 complex and the sequential activation of the components in the ATM-p53 pathway that induces apoptosis in response to DNA damage. Silencing Smad7 activity resulted in mitotic spindle defects and aberrations of the cell cycle checkpoints; cell process irregularities that are required for cancer onset and progression. These findings suggest that TGF $\beta$  and Smad7 play an important role in maintaining genome integrity in epithelial cells. The expression of Smad7 might also be useful, following further confirmatory analyses, as a novel biomarker to predict tumour progression in patients with breast, colon and prostate cancers.

To investigate the developmental and physiological role(s) of Smad7 *in vivo*, an LICR team engineered a mouse model lacking the half of the Smad7 protein that inhibits TGF $\beta$  signalling. The resulting mice were smaller than wild-type mice, indicating that Smad7 has an important role during embryological development. Smad7 also has a role in immunological response, with an immune system stimulant inducing altered B cell responses. B cells lacking Smad7's inhibitory function had higher rates of apoptosis and lower proliferation compared to normal B cells. Investigation of the effects of Smad7 on other immune system components is ongoing.

The bone morphogenetic proteins (BMPs), are part of the TGF $\beta$  ligand super-family, and regulate differentiation, cell proliferation and apoptosis via activation of the BMP-specific Smad proteins, Smad1, Smad5 and Smad8. The transmembrane BMP type II receptor (BMPR-II), to which BMPs bind, activates signalling by phosphorylating serine and threonine residues in the amino acid sequence of downstream signalling proteins. A collaborative study between two groups from the Uppsala Branch has this year shown that BMPR-II interacts and cooperates functionally with c-kit, a transmembrane receptor that activates signalling by phosphorylating tyrosine residues in downstream signalling proteins. It is well known that there is functional cross-talk between the downstream signalling proteins activated by serine and threonine kinase receptors and those activated by tyrosine kinase receptors. However, this is the first study to show evidence of the different receptor types forming a functional complex upon ligand binding.

## Cell Biology

Research in Cell Biology examines how the function and structure of the cell is affected by the disruption of cellular processes by cancer.

### *Chromosome Structure & Dynamics*

*Cancer is caused fundamentally by a loss of genome integrity that alters the structure, function and/or abundance of gene products. Genome integrity is maintained by the detection and repair of damage to DNA, and by the strict regulation of mitosis; the process of chromosome duplication and segregation to two identical daughter cells during cell division. Failure to accurately segregate chromosomes during cell division results in 'aneuploidy' (an incorrect number of chromosomes) in the daughter cells. The mitotic checkpoint prevents aneuploidy by detecting aberrant or missing attachments between spindle microtubules and 'kinetochores,' multi-protein structures that assemble on the 'centromeres' (condensed and constricted region) of duplicated chromosomes. Activation of the mitotic checkpoint delays cell cycle progression until all chromosomes are properly attached. Understanding how kinetochores assemble and interact with spindle microtubules - and how failure of this process triggers the mitotic checkpoint - are vital to understanding how aneuploidy occurs, and identifying new cancer therapy targets and strategies.*

In two landmark papers published in the renowned journal, *Cell*, a team from the San Diego Branch identified the proteins essential for both the kinetochore-microtubule interaction and the method by which incorrect microtubule attachments are detected. While many proteins have been shown to affect the polymerization of microtubules or the stability of their attachment to the kinetochore, this study was the first to identify a network of 10 interacting proteins (the KMN network) that constitutes the essential core of the kinetochore's microtubule attachment site. The team uncovered the KMN network using a combination of biochemistry and RNAi-based screens in the worm, *Caenorhabditis elegans* (*C. elegans*). Subsequent reconstitution of the KMN network by expression of protein sub-complexes in bacteria, allowed the team to identify the components of the network that contribute to microtubule binding. The KMN network is comprised of the protein, KNL-1, the Mis-12 protein complex, which includes the MIS-12, KBP-1, KPB-2 and KNL-3 protein subunits, and the Ndc80 complex of four proteins, Ndc80, Nuf2, Spc24 and Spc25. The findings suggest that KNL-1 and Mis12 complex together form a binding site for the Ndc80 complex. The KMN network then has two distinct microtubule-binding activities: one involving the Ndc80/Nuf2 dimer within the Ndc80 complex, and one involving KNL-1. Current chemotherapies target microtubules in all cells of the body, which causes both side-effects and lowered drug efficacy. These kinetochore-forming proteins represent new targets for cancer chemotherapies, as their disruption will specifically target dividing cells.



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The mitotic checkpoint detects the absence of kinetochore-microtubule attachments, but a mechanism to detect aberrant microtubule attachments is also required. The correction of improper microtubule attachments requires the Aurora B kinase, which detaches the kinetochores, allowing them to try again until an appropriate attachment is made. To detect aberrant attachments, Aurora B senses whether kinetochores are under tension; 'biorientation,' which occurs when spindles pull the kinetochores in opposite directions, places the kinetochore-microtubule connection under tension, while 'syntelic attachments' (both kinetochores being pulled in the same direction) do not. Aurora B dissolves microtubule connections when the tension is not sensed, and the unoccupied kinetochore triggers the mitotic checkpoint. A collaboration between two groups at the San Diego Branch has now identified the centromere DNA/microtubule complex that acts as a tension sensor. The San Diego team showed that a complex of two proteins, Bir1/Survivin and Sli15/INCENP, which controls Aurora B targeting and activation, connects centromeric DNA to microtubules. When kinetochore tension is absent, the Bir1/Sli15 complex activates Aurora B, which phosphorylates components of both the core attachment and the tension-sensing complex to release the kinetochore from the microtubule. The team has postulated a model - based on these and other experimental studies - in which the core attachment is the Ndc80 complex described above. The Ndc80 complex binds directly to microtubules, but its affinity is reduced by Aurora B-directed phosphorylation.

The centromere is a region of 'chromatin,' the DNA/protein super-structure that packages the cell's genome, and is characterized by the presence of DNA complexed with the protein, CENP-A. Investigators from the San Diego Branch this year discovered that CENP-A recruits a nucleosome associated complex (NAC) comprised of three previously unknown centromere proteins. The team also showed that seven new CENP-A nucleosomal distal (CAD) centromere components then assemble on the CENP-A NAC. While the CENP-A NAC complex and associated CAD proteins are required for stabilizing the microtubule attachment, they do not appear to be involved in the mitotic checkpoint.

A second group from the San Diego Branch extended their work on kinetochore proteins identified in *C. elegans* to the analysis of the human equivalents. The team found that four proteins - Mis12, Dsn1, Nnf1 and Nsl1 - form a discrete complex required for chromosome alignment, and progression through the cell cycle. Cells depleted of the complex have kinetochore assembly defects, with reduced levels of inner and outer kinetochore proteins. The levels of the mitotic checkpoint protein, BubR1, were lower too, suggesting a cause for the compromised mitotic checkpoint function. The cells also exhibited defective chromosome biorientation,

As cells enter mitosis, their chromosomes are condensed to facilitate their segregation into daughter cells. A collaborative venture between two teams at the San Diego Branch developed a novel method to quantitatively analyze this chromosome condensation in living cells. The ability to quantitatively evaluate the functional effects of disrupting specific proteins is invaluable for understanding mitosis. To monitor condensation the team developed an image analysis based method to detect progressive changes in the fluorescence intensity distribution of 'green fluorescent protein' (GFP) fused to a core histone as chromosomes condense in living cells. To analyze the effects of depleting key chromosomal proteins on condensation, the team used the *C. elegans* embryo as a model system. First, the LICR investigators showed that condensation occurs with biphasic kinetics; the first step (primary condensation) condenses diffuse chromatin into discrete linear chromosomes, and the second step (secondary condensation) compacts the chromosomes into even shorter structures. When condensin complexes, which are critical for proper condensation, were disrupted, the primary phase of chromatin compaction failed, and discrete chromosomes were not formed at all. Surprisingly, the team found that depleting the protein, CENP-A delayed chromatin condensation and also resulted in a failure of discrete chromosome formation. Depletion of the protein, CENP-C, which blocks recruitment of all kinetochore proteins excepting CENP-A, had only

a slowed primary phase and discrete chromosomes were able to form. Taken together, these findings suggest that CENP-A has a role in condensation that is independent of its role in kinetochore assembly. The paper describing this study was designated a 'Must Read,' by 'Faculty of 1000 Biology,' a group of over 1000 scientists that highlight the most interesting papers in biology.

## Immunology

The immune system has a remarkable capacity for fending off infectious diseases, and it has become clear that these same defences can recognize and destroy cancer cells. LICR is working on treatment strategies, such as targeted antibodies and cancer vaccines, which harness the body's immune system to more effectively and specifically fight cancer cells. An understanding of the role of the immune system in cancer development and the development of cancer therapies based on immunologic principles continue to be major objectives of LICR, which is, arguably, the largest academic centre in the world for cancer immunology studies.

### Cancer Antigen Discovery & Characterization

*One of the obstacles in treating cancer is that cancer cells appear to be almost identical to normal cells. Conventional chemotherapeutic drugs are unable to differentiate between cancer cells and normal cells, and thus frequently cause side-effects by affecting healthy tissues. The human immune system is able to distinguish between normal and cancer cells by recognizing 'cancer (or tumour) antigens,' molecules generated by the cancer cell and presented, on the cell surface, to the immune system. LICR is investigating two immunotherapy modalities based on cancer antigens: i) antibodies that bind to the antigen to visualize the tumour (when labelled with a radioisotope), deliver a cytotoxic pay-load (when conjugated with a radioisotope or toxin), or induce an immunological response against the cancer cell, and: ii) therapeutic cancer vaccines that induce an immunological response. The identification and characterization of cancer antigens will help determine which antibody and which vaccine constitution will be most effective in particular tumour types.*

Cancer/testis (CT) antigens are a subgroup of cancer antigens expressed in normal germline cells (testis, placenta and embryological ovary) and in different types of tumours. Because of their restricted expression, several therapeutic cancer vaccines based on CT antigens are in early-phase clinical trials, including some being conducted by LICR. A collaboration between investigators at the New York and Sao Paulo Branches have discovered and characterized a new family of CT antigens. The archetypal member is the protein, CTSP-1, which is expressed in normal testis and in a variety of different tumour types, particularly melanoma, prostate and lung. Other members of the gene family also have a highly restricted expression pattern. Antibodies against the gene family members were detected in the plasma of 10% of 141 patients with cancer - particularly those patients with prostate, thyroid and breast tumours - indicating that the antigen is capable of eliciting spontaneous immune responses. Taken together, these results suggest that CTSP-1 is a promising candidate for cancer immunotherapy.

CT antigens can be divided into two groups, those whose genes are encoded on the X chromosome (CT-X antigens) and those that are not (non-X CT antigens). CT-X genes are often expressed in a coordinate manner in cancer cells, and this is associated with poor outcome in different tumour types. A collaboration between investigators at the New York Branch and Affiliates in New York (USA) found that two CT-X genes, MAGE-C1 and NY-ESO-1, physically interact and co-localize in melanoma cells. This is the first report of direct interaction between CT antigens, with the relevance of this finding to cancer being explored currently.

Investigators from the New York Branch and Affiliates in Houston (USA) measured the 'expression' (production) of nine CT antigens in a panel of tumour samples from 95 patients with high-grade

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urothelial carcinoma, a tumour-type that accounts for more than 90% of all bladder cancers. The team found that at least one of the nine CT antigens was expressed in 77% of the cancer samples, with 61% expressing more than one CT antigen. Additionally, the expression of one of the antigens, CT10, appeared to correlate with disease-free survival of the patients, indicating that it may have a prognostic value. These findings indicate a cancer vaccine that targets several CT antigens may be of therapeutic value for patients with bladder cancers.

The Cancer Vaccine Collaborative (CVC, a partnership between LICR and the New York-based, Cancer Research Institute) is testing multiple melanoma vaccines that are based on CT antigens or 'differentiation' antigens, which are expressed in normal and malignant cells derived from melanocytes (pigment-producing skin cells). Investigators at the Melbourne Center have completed a large study to characterize the expression of three CT antigens, MAGE-A1, MAGE-A4 and NY-ESO-1, plus three differentiation antigens, gp100, tyrosinase and Melan-A, in melanoma. First, the team found that CT antigens are not highly expressed in desmoplastic melanoma, a rare form of melanoma, suggesting that a therapeutic cancer vaccine may not be efficacious for this form of cancer. The team then studied a series of over 500 malignant melanoma samples taken from both primary (original) tumours and metastatic tumours, i.e. those that had spread from the primary tumour, including multiple, sequential samples from 86 patients. Crucially, the results from the study - the largest published series of primary and metastatic melanoma samples in which the expression of different classes of cancer antigens has been evaluated - indicate that antigen expression may be lost and acquired as the tumour progresses or metastasizes. Taken together, the results of these studies provide critical information for selecting patients and antigens for immunotherapy clinical trials for melanoma.

In 2006, investigators from the Brussels Branch generated a mouse model in which melanoma that expresses a defined CT antigen can be induced. This genetic engineering approach may provide an invaluable preclinical model to study tumours. Most preclinical models available today are based on either spontaneous (mouse) melanomas that don't express a defined antigen or on transplantable tumours that express a defined antigen. The problem with transplantable tumours is that they have not developed in the natural tissue microenvironment and thus may not recapitulate the long-term interaction between the cancer cells, the immune system and the host tissues. This model can be used to study basic cancer immunology mechanisms, including tumour resistance to the immune system, tumour rejection following vaccination.

### Clinical Trials

*LICR believes that human benefit from laboratory research is derived most efficiently when early clinical studies are conducted to verify and explore these discoveries in the human setting. Based on this principle, LICR assesses the therapeutic utility of its research discoveries by sponsoring and conducting its own early phase proof-of-concept clinical trials. The global LICR Phase I and II clinical trials are coordinated centrally by the Office of Clinical Trials Management in New York.*

As part of its program of clinical discovery in 2006, three trials were initiated, bringing to 30 the number of trials open to patient accrual. A total of 221 patients were enrolled. By the end of 2006, the Institute had nine active Investigational New Drug (IND) applications (USA), two Drug Master Files (DMF) and two Investigational Medicinal Product Dossiers (EU).

### Clinical Trial Sites

The following sites had active LICR trials in 2006:



Australasia

- Austin Hospital (LICR Melbourne Center), Melbourne VIC, Australia
- Peter MacCallum Cancer Centre, Melbourne VIC, Australia
- Royal Adelaide Hospital, Adelaide SA, Australia
- Princess Alexandra Hospital, Brisbane QLD, Australia
- Royal Brisbane Hospital, Brisbane QLD, Australia
- Prince Alfred Hospital, Sydney NSW, Australia
- Sydney Melanoma Unit, Waratah NSW, Australia
- Sir Charles Gairdner Hospital, Nedlands WA, Australia
- University of Auckland, Auckland, New Zealand

Europe

- Clinique Universitaires Saint-Luc (LICR Brussels Branch), Brussels, Belgium
- Centre Hospitalier Universitaire Vaudois (LICR Lausanne Branch), Lausanne, Switzerland
- Geneva University Hospital, Geneva, Switzerland
- University Hospital Zurich, Zurich, Switzerland
- Free University of Berlin, Berlin, Germany
- Krankenhaus Nordwest, Frankfurt, Germany
- Saarland University, Homburg, Germany
- University of Mannheim, Mannheim, Germany
- University Hospital Hotel-Dieu, Nantes, France
- University Hospital Nijmegen, Nijmegen, Netherlands
- Addensbrooke's Hospital, Cambridge, GB
- Beatson Oncology Centre, Glasgow, GB
- Birmingham University, Birmingham, GB
- Christie Hospital, Manchester, GB
- Guy's Hospital, London, GB
- Mount Vernon Hospital, Northwood, GB
- Nottingham City Hospital, Nottingham, GB
- Royal Free Hospital, London, GB
- Royal Marsden Hospital, London, GB
- Southampton University Hospital, Southampton, GB
- St James's University Hospital, Leeds, GB
- St George's Hospital, London, GB
- Weston Park Hospital, Sheffield, GB

## Ludwig Institute for Cancer Research

### North America

- Columbia University Medical Center, New York NY, USA
- Memorial Sloan-Kettering Cancer Center (LICR New York Branch), New York NY, USA
- M.D. Anderson Cancer Center, Houston TX, USA
- New York University Clinical Cancer Center, New York NY, USA
- Roswell Park Cancer Institute, Buffalo NY, USA
- Weill Medical College of Cornell University, New York NY, USA

### ***Biological Production Facilities***

*Investigational agents for use in human clinical trials must meet extensive standardization and quality control criteria. These “current Good Manufacturing Practices” (cGMP), extensive testing, and secure and monitored storage conditions ensure the safety of investigational agents and compliance with regulatory and licensing requirements. To translate discoveries rapidly and effectively into investigational agents for clinical trials, facilities that perform these functions must be able to meet these high standards.*

The Cornell University/LICR Bioprocess Research and Biologics Production Facility at Ithaca, New York, both develops and utilizes manufacturing scale bacterial and yeast protein expression systems to produce purified clinical-grade proteins. These proteins include NY-ESO-1, SSX2, MAGE-3 and Melan A, which are required for LICR’s clinical trials of therapeutic cancer vaccines.

After production, the proteins are transferred to the LICR facility in Melbourne which serves as the testing, storage, documentation and distribution centre for all LICR investigational agents.

### **Intellectual Property Program**

To ensure that the Institute is able to capitalize on its discoveries, a vigorous patent protection policy has been pursued. In 2006, 13 patents were issued and 30 filed in the United States of America and a further 26 new international patent (PCT) applications were published. These patents cover research discoveries relating to growth factors, cytokines, signalling molecules, antibodies and human tumour antigens.

The Office of Intellectual Property and Technology Licensing is bringing these discoveries to the attention of the pharmaceutical and biotechnology industries as new candidates for licensing, with the ultimate goal of having LICR discoveries developed into potential cancer therapies. In 2006, a landmark deal was the signing of an agreement with GSK Biologicals, one of the world’s leading vaccine manufacturers, whereby GSK licensed a substantial portfolio of tumour-specific antigens, generated through the LICR Cancer Vaccine Program, and committed to taking several into Phase II/III clinical trials. The year also saw the creation of and the Institute’s participation in three spin-off companies to explore the development of antibody therapies based on LICR research discoveries generated through the Targeted Antibody Program. One of these companies is the first oncology biotechnology company to be formed in Brazil.

**Academic Matters**

During 2006, LICR investigators published in excess of 400 papers in peer-reviewed journals.

The quality of the Institute's science continued to be internationally recognized and a number of distinctions and awards were received.

Formal academic review to assess the quality and impact of the research performed by LICR staff members was conducted in 2006 by the Scientific Advisory Committee and the Scientific Directorate. Following external review, two staff members were promoted to Member rank, one to Associate Member rank, two to Associate Investigator rank, one to Assistant Investigator rank and five to Senior Investigator rank.

**Ludwig Institute for Cancer Research**

**Statutory Financial Statements 2006**

**Ludwig Institute for Cancer Research,  
Zurich**

Report of the Statutory Auditors  
to the General Meeting

Financial Statements 2006

KPMG Ltd  
*Zurich, April 5, 2007*  
Ref. Marc Widmer



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Report of the Statutory Auditors to the General Meeting of the

**Ludwig Institute for Cancer Research, Zurich**

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As statutory auditors, we have audited the accounting records and the financial statements presented on pages 18 to 26 (balance sheet, income statement and notes) of the Ludwig Institute for Cancer Research for the year ended December 31, 2006.

These financial statements are the responsibility of the board of directors. Our responsibility is to express an opinion on these financial statements based on our audit. We confirm that we meet the legal requirements concerning professional qualification and independence.

Our audit was conducted in accordance with Swiss Auditing Standards, which require that an audit be planned and performed to obtain reasonable assurance about whether the financial statements are free of material misstatement. We have examined on a test basis evidence supporting the amounts and disclosures in the financial statements. We have also assessed the accounting principles used, significant estimates made and the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the accounting records and financial statements and the proposed appropriation of available earnings comply with Swiss law and the company's articles of incorporation.

We recommend that the financial statements submitted to you be approved.

KPMG Ltd

Martin Schaad  
Swiss Certified Accountant  
Auditor in Charge

Michael Herzog  
Swiss Certified Accountant

Zurich, April 5, 2007

**Balance sheet**  
**as at December 31, 2006**

	<i>USD</i>		<i>CHF</i>	
	2006	2005	2006	2005
<b>Assets</b>				
<b>Current assets</b>				
Liquid funds (Note 1.b)	11,780,280	9,609,169	14,380,285	12,663,919
Fixed term deposits (Note 1.b)	21,805,689	9,071,954	26,618,329	11,955,941
Other receivables -				
third parties	2,241,394	2,211,928	2,736,105	2,915,098
external funding	5,062,114	3,755,254	6,179,313	4,949,061
Prepayments and accrued income	3,090,515	1,802,751	3,772,616	2,375,847
<b>Total current assets</b>	<b>43,979,992</b>	<b>26,451,056</b>	<b>53,686,648</b>	<b>34,859,866</b>
<b>Fixed assets</b>				
Financial fixed assets -				
investments (Note 4)	6,812,904	5,108,060	8,316,608	6,731,912
other financial fixed assets	673,778	912,505	822,481	1,202,593
<b>Total fixed assets</b>	<b>7,486,682</b>	<b>6,020,565</b>	<b>9,139,089</b>	<b>7,934,505</b>
<b>Total assets</b>	<b>51,466,674</b>	<b>32,471,621</b>	<b>62,825,737</b>	<b>42,794,371</b>
<b>Liabilities and net worth</b>				
<b>Current liabilities</b>				
Accounts payable - third parties	11,556,325	7,142,739	14,106,874	9,413,427
Accruals	10,868,800	8,748,897	13,267,715	11,530,181
Deferred income	9,531,322	4,681,344	11,635,104	6,169,523
<b>Total current liabilities</b>	<b>31,956,447</b>	<b>20,572,980</b>	<b>39,009,693</b>	<b>27,113,131</b>
<b>Total liabilities</b>	<b>31,956,447</b>	<b>20,572,980</b>	<b>39,009,693</b>	<b>27,113,131</b>
<b>Net worth</b>				
Share capital (Note 1e)	33,722	33,722	50,000	50,000
Legal reserve (Note 1e)	6,744	6,744	10,000	10,000
Cumulative exchange adjustment (Note 1e)	8,686	5,061	0	0
Excess of income over expenditure (Note 3)	19,461,075	11,853,114	23,756,044	15,621,240
<b>Net worth</b>	<b>19,510,227</b>	<b>11,898,641</b>	<b>23,816,044</b>	<b>15,681,240</b>
<b>Total liabilities and net worth</b>	<b>51,466,674</b>	<b>32,471,621</b>	<b>62,825,737</b>	<b>42,794,371</b>

**Statement of income and expenditure  
for the year ended December 31, 2006**

	<i>USD</i>		<i>CHF</i>	
	2006	2005	2006	2005
<b>Income (Note 1.c)</b>				
Contributions and dividends	66,367,486	72,496,825	84,751,797	88,325,215
Interest	1,147,832	660,091	1,460,238	817,180
External funding (Note 9)	27,923,046	26,562,490	35,523,545	32,883,927
License fees and patent royalties (Note 2)	10,081,342	4,925,492	12,824,888	6,097,686
Other income	411,867	182,290	523,939	225,669
<b>Total income</b>	<b>105,931,573</b>	<b>104,827,188</b>	<b>135,084,407</b>	<b>128,349,677</b>
<b>Medical research and related expenditure</b>				
Salaries & social benefits	54,131,040	54,622,134	68,867,478	67,621,580
Laboratory	13,521,199	13,788,990	17,201,203	17,070,600
Equipment & other assets (Note 1.f)	4,057,080	4,388,642	5,161,513	5,433,082
Leasehold improvements (Note 1.f)	404,293	316,824	514,285	392,214
Clinical trials	1,548,498	2,421,774	1,969,858	2,998,113
Collaborative research programs	6,866,969	5,642,717	8,735,777	6,985,649
Occupancy	7,211,776	7,466,751	9,175,920	9,243,822
Travel	545,301	842,962	693,855	1,043,583
Scientific conferences, seminars etc.	1,004,758	1,110,235	1,278,349	1,374,456
Consultants	1,619,245	2,151,193	2,060,405	2,663,173
Patent costs	3,124,955	2,769,989	3,975,502	3,429,231
Other operating expenses	5,016,800	5,955,397	6,383,011	7,372,756
<b>Total medical research and related expenditure</b>	<b>99,051,914</b>	<b>101,477,608</b>	<b>126,017,156</b>	<b>125,628,259</b>
<b>Excess of income over expenditure before other items</b>	<b>6,879,659</b>	<b>3,349,580</b>	<b>9,067,251</b>	<b>2,721,418</b>
<b>Other items</b>				
Net gain / (loss) on foreign exchange (Note 1.e)	728,302	(1,257,203)	(932,447)	1,800,835
<b>Excess of income over expenditure for the year</b>	<b>7,607,961</b>	<b>2,092,377</b>	<b>8,134,804</b>	<b>4,522,253</b>
<b>Excess of income over expenditure at beginning of year</b>	<b>11,853,114</b>	<b>9,760,737</b>	<b>15,621,240</b>	<b>11,098,987</b>
<b>Excess of income over expenditure at end of year</b>	<b>19,461,075</b>	<b>11,853,114</b>	<b>23,756,044</b>	<b>15,621,240</b>

## Notes to Financial Statements – December 31, 2006

### 1 Accounting policies

#### 1.a Basis of preparation

These financial statements have been prepared in accordance with the provisions of the Swiss Code of Obligations.

#### 1.b Liquid funds and fixed term deposits

Cash on hand and at banks and funds on call available within 48 hours are classified as liquid funds. Cash deposits fixed for periods of longer than 48 hours are classified as fixed term deposits.

#### 1.c Income

Contributions and dividends are accounted for on the cash basis.

Interest is accounted for on the accruals basis.

External funding received from any outside source, whether of cash or a non-cash nature, is recorded in the Institute's books of account upon receipt. External funding received is taken to income when the corresponding expenditure is incurred. Any unspent income is deferred to future accounting periods. External funding pledged, but not received where expenditure has been incurred, is taken to account as income and is accounted for as receivable pending receipt.

License fees and royalties are accounted for on the modified cash basis.

#### 1.d Joint ventures

The Institute has entered into joint ventures to carry out research projects on a joint basis with affiliated hospitals and research institutions. Income received and expenditure incurred under joint ventures is accounted for by the method of proportional consolidation.

#### 1.e Translation of foreign exchange transactions

The Institute's Zurich and Lausanne offices' Swiss franc transactions and the Lausanne Branch's operations are recorded in Swiss francs. Those of the Brussels, London St. Mary's (closed August 2005), London University College, Melbourne, New York, San Diego, Sao Paulo, Stockholm and Uppsala Branches are recorded in the currencies of their respective countries. The foreign branch accounts and the Zurich, New York, London (closed June 2006) and Lausanne offices' transactions in currencies other than Swiss francs are translated for the purpose of preparing statutory financial statements of the Institute as a whole into Swiss francs in accordance with the following principles: -



- i. Income – contributions and dividends at the monthly rates as published by the Swiss VAT authorities. All other income is translated at the yearly average of the monthly rates as published by the Swiss VAT authorities.
- ii. Expenditure – at the yearly average of the monthly rates as published by the Swiss VAT authorities.
- iii. Assets and liabilities – at the rates ruling at the end of the respective year.

The USD equivalents of the statutory financial statements in CHF are presented in accordance with the same principles as stated above and in addition share capital, legal reserve and the balance of income at the beginning of the year are translated at historical rates.

The resulting translation adjustments are included in the excess of income over expenditure for the year.

### 1.f Tangible fixed assets

Expenditure on equipment and other assets and leasehold improvements is charged in full against revenue in the year it is incurred.

## 2 License fees and royalties

License fees and royalties are shown net of co-owners' share of income.

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Gross license fees and royalties	14,014,120	7,634,190	17,829,348	9,451,054
Co-owners' share distributed	3,932,778	2,708,698	5,004,460	3,353,368
Net license fee and royalties income	10,081,342	4,925,492	12,824,888	6,097,686

## 3 Excess of income over expenditure

The Statutes of the Institute stipulate that the excess of income over expenditure shall not be distributed to shareholders and accordingly the Board of Directors proposes that the available excess of income over expenditure of CHF 23,756,044 (USD 19,461,075) at December 31, 2006 be carried forward.

## 4 Investments

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
<b>Universe Tankships, Inc.</b>				
Investment	5,103,000	5,103,000	6,229,232	6,725,244
Interest in capital	100%	100%	100%	100%
Dividends paid to Institute	3,500,000	0	4,603,550	0
<b>PIramed Ltd</b>				
Investment	861	756	1,052	996
Interest in capital	4%	8%	4%	8%
Dividends paid to Institute	0	0	0	0
<b>XCellSyz Ltd</b>				
Investment	0	7	0	9
Interest in capital	0%	1%	0%	1%
Dividends paid to Institute	0	0	0	0
<b>Lymphatix Ltd</b>				
Investment	4,804	4,297	5,864	5,663
Interest in capital	36%	36%	36%	36%
Dividends paid to Institute	0	0	0	0
<b>Vegenics Ltd</b>				
Investment	1,702,512	0	2,078,352	0
Interest in capital	23%	0%	23%	0%
Dividends paid to Institute	0	0	0	0
<b>Life Sciences Pharmaceuticals, Inc.</b>				
Investment	1,500	0	1,831	0
Interest in capital	15%	0%	15%	0%
Dividends paid to Institute	0	0	0	0
<b>Recepta Biopharma S.A.</b>				
Investment	227	0	277	0
Interest in capital	49%	0	49%	0
Dividends paid to Institute	0	0	0	0
Total Investments	6,812,904	5,108,060	8,316,608	6,731,912

The Investment in XCellSyz Ltd, which was acquired in 2004, has been written off in 2006.

In accordance with a License and a Shareholder agreement both dated April 25, 2006, the Institute acquired on July 4, 2006 13.5 million shares in Vegenics Ltd. at a nominal value of AUD 0.16 per share.

In accordance with a Development and License agreement dated May 9, 2006, the Institute acquired 1.5 million shares in Life Sciences Pharmaceuticals, Inc. at a nominal value of USD 0.001 per share.

In accordance with various research, development and license agreements and a Shareholder agreement, all dated October 10, 2006, the Institute acquired 490 shares in Recepta Biopharma S.A. at a nominal value of BRL 1.00 per share.

## 5 Fire insurance values

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Equipment and other assets	77,312,648	80,534,065	94,375,549	106,135,844
Leasehold improvements	31,310,433	34,792,202	38,220,646	45,852,643
Tangible fixed assets	108,623,081	115,326,267	132,596,195	151,988,487

## 6 Liabilities to pension funds

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Current liabilities	42,962	32,093	52,444	42,295

Branches and offices with defined contribution schemes are located in Belgium, Brazil, Sweden, Switzerland and the United States of America. The branches in Australia and in Great Britain are registered employers with the local university pension schemes, which set the level of contributions based on the advice of the schemes' actuaries. In view of the size of the schemes and the Institute's limited participation in the management of the schemes, the two university schemes are treated as defined contribution schemes. The contributions are calculated as a percentage of the insured salary.

Institute wide, the annual cost of the employer's contributions in 2006 and 2005 for all plans amounted to CHF 5,814,589 (USD 4,569,421) and CHF 5,782,791 (USD 4,671,075) respectively.

## Ludwig Institute for Cancer Research

From 2002, a second pension scheme in Great Britain, the Federated Pension Scheme (FPS), has been accounted for as a defined benefit scheme in accordance with Swiss GAAP FER 16. The scheme's pension liabilities are set out in the following table: -

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Value of funded obligations	10,553,222	9,025,218	12,882,319	11,894,334
Market value of the scheme's assets	11,103,196	8,942,811	13,553,671	11,785,731
(Surplus) / Shortfall	(549,974)	82,407	(671,352)	108,603
(Excess provision)	(941,414)	(343,359)	(1,149,192)	(452,522)
Provision for funded obligations	391,440	425,766	477,840	561,125

This provision of CHF 477,840 (USD 391,440) has been accounted for in the balance sheet under "Accruals".

The total return for the FPS defined benefit plan in 2006 amounted to CHF 37,065 (USD 29,128), being the current service and interest costs minus the expected return on assets of CHF 74,131 (USD 58,256) and the reduction of the provision for funded obligations of CHF 111,196 (USD 87,384).

In 2005, the total costs for the FPS defined benefit plan were CHF 412,102 (USD 332,877), being the current service and interest costs minus the expected return on assets of CHF 316,476 (USD 255,635) and the increase in the provision for funded obligations 2005 of CHF 95,626 (USD 77,242).

The underlying actuarial assumptions, used in the calculation are based on current economic circumstances and tax exemption status, are as follows: -

<i>Description</i>	<i>2006</i>	<i>2005</i>
Discount rate	5.10%	4.90%
Expected rate of return	6.90%	7.00%
Annual increase of future salaries	4.10%	3.50%

An actuarial valuation is carried out triennially and in addition a valuation in accordance with Swiss GAAP FER 16 is carried out annually.

No surplus of scheme assets has been capitalized in the balance sheet.

Following legislation introduced in September 2005 in Great Britain, special provisions apply in the event of either an employer winding up a pension scheme or causing a cessation event to occur as a registered employer of a multi-employer pension scheme. In these cases, the employer is required to make additional funding available to buy-out all liabilities with an insurance company (defined either as "buy-out-debt" or "Section 75 debt") or, for multi-

employer schemes with continuing indirect participation, to enter into an approved withdrawal arrangement (“AWA”). Subject to agreement with the trustee of the pension scheme and the pension regulator, under an AWA, a guarantee is to be provided by the employer to the trustee of the pension scheme and the additional funding requirement is deferred until the trustee requires it to be paid or the scheme commences wind-up.

Liability incurred by buying out debt with insurance companies is invariably significantly greater than that calculated using traditional actuarial valuations.

Examples of cessation events when buy-out debt shall become due are as follows:-

- The last remaining active member ceases to be active for any reason;
- The institution withdraws from a multi-employer scheme;
- The institution merges or amalgamates with another institution to become a single new institution or
- The institution changes its identity and its assets and obligations transfer to a new institution.

The Institute’s Board of Directors has reviewed the position taking into account the various on-going employment situations in Great Britain. As both the FPS and the Universities Superannuation Scheme (USS) continue to have active members, and it is intended to retain the two schemes for active members, the Board has concluded that there is no need to make provision for “buy-out-debt” as at December 2006 and 2005.

In the event that a “buy-out-debt” liability would be incurred for the two pension schemes in Great Britain, the cost thereof, based on information provided by the respective trustee and actuary, is estimated at CHF 11.9 million (USD 9.8 million) as of December 31, 2006.

## 7 Lease commitments

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Lease commitments not recorded in the balance sheet	22,136,970	24,457,957	27,022,703	32,233,132

## 8 Value added tax

The Institute is registered for value added tax in Switzerland.

In September 2004, the Federal Tax Administration carried out an audit at the Institute’s Zurich office. In an informal report, the Federal Tax Administration questioned the method used by the Institute in calculating the reduction of the input tax for the years 2000 to 2004.

The report set out three different methods to calculate the input tax reduction with claims ranging for 2003 - the year audited in detail - between CHF 889,937 (USD 782,637) and CHF 929,802 (USD 817,696).

## **Ludwig Institute for Cancer Research**

In May 2005 the Federal Tax Administration revised their initial position and invoiced the Institute for a total amount of CHF 1,739,606 (USD 1,319,983) with amounts ranging between CHF 301,866 (USD 229,051) and CHF 374,404 (USD 284,091) for the years 2000 to 2004.

The Institute's management continues to be not in agreement with these calculations and its tax advisors wrote to the Federal Tax Administration in June 2005 setting out again the Institute's position. The Federal Tax Administration has not, as yet, responded to this letter.

In the opinion of management, based on professional advice received, the Institute expects a further substantial reduction in the claim by the Federal Tax Administration. However, taking account of the developments that took place in 2005, for the sake of prudence, an accrual of CHF 1,205,000 (USD 914,333) has been included in the financial statements 2005. In 2006 this accrual was increased to CHF 1,435,000 (USD 1,175,555).

### **9 External funding**

The Institute receives external funding from third parties including government agencies, in return for which the Institute may be obliged to comply with specific conditions. In certain cases, the right and / or obligation exists to confirm compliance by means of audit. The Board of Directors does not expect that these arrangements will result in any significant adverse financial consequences for the Institute.

### **10 Related party transactions**

The Institute effectively controls LICR Fund, Inc. (the "Fund"), a non-profit membership corporation incorporated in Delaware, USA, which was established to receive, hold and invest funds on behalf of the Institute.

During 2006 and 2005 the Fund was a material source of funding and made grants of CHF 76,585,222 (USD 60,067,486) and CHF 84,982,672 (USD 69,796,825) respectively.

Effective January 1, 2006, the Institute entered into a new administrative service agreement with The Ludwig Group, Inc., (LGI), a wholly owned subsidiary of Universe Tankships, Inc., Delaware USA. This new agreement replaces the former contract between the two parties, which was in effect as from January 1, 1996.

Fees paid by the Institute New York office under the service agreement including occupancy related costs amounted to CHF 2.7 Mio (USD 2.1 Mio) in 2006 and CHF 1.8 Mio (USD 1.4 Mio) in 2005.

Payables in favor of LGI by the Institute New York office as at December 31, 2006 and December 31, 2005 amounted to CHF 563,198 (USD 461,373) and CHF 472,673 (USD 358,656).

Consolidated Financial Statements 2006

**Ludwig Institute for Cancer Research,  
Zurich**

Report of the Group Auditors  
to the General Meeting

Consolidated Financial Statements 2006

KPMG Ltd.  
*Zurich, April 5, 2007*  
Ref. Marc Widmer



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Report of the Group Auditors to the General Meeting of

**Ludwig Institute for Cancer Research, Zurich**

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As group auditors, we have audited the consolidated financial statements presented on pages 29 to 42 (balance sheet, income statement, cash flow statement and notes) of the Ludwig Institute for Cancer Research for the year ended December 31, 2006.

These consolidated financial statements are the responsibility of the board of directors. Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We confirm that we meet the legal requirements concerning professional qualification and independence.

Our audit was conducted in accordance with Swiss Auditing Standards, which require that an audit be planned and performed to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. We have examined on a test basis evidence supporting the amounts and disclosures in the consolidated financial statements. We have also assessed the accounting principles used, significant estimates made and the overall consolidated financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements give a true and fair view of the financial position, the results of operations and the cash flows in accordance with Swiss GAAP FER and comply with Swiss law.

We recommend that the consolidated financial statements submitted to you be approved.

KPMG Ltd

Martin Schaad  
Swiss Certified Accountant  
Auditor in Charge

Michael Herzog  
Swiss Certified Accountant

Zurich, April 5, 2007



**Consolidated Balance Sheet  
as at December 31, 2006**

	<u>USD</u>		<u>CHF</u>	
	2006	2005	2006	2005
<b>Assets</b>				
<b>Current assets</b>				
Liquid funds (Note 2)	11,882,530	9,686,221	14,505,102	12,765,466
Short-term cash deposits (Note 2)	21,805,689	9,071,954	26,618,329	11,955,941
Investments (Notes 2 & 3)	1,290,285,350	1,180,306,389	1,575,051,327	1,555,525,790
Collateral under securities loan agreement (Note 4)	113,122,277	91,580,608	138,088,364	120,694,083
Interest & dividends receivable	2,918,904	2,989,338	3,563,106	3,939,649
Research external funding receivables (Note 2)	5,062,114	3,755,254	6,179,313	4,949,061
Other receivables - third parties	2,352,513	2,387,772	2,871,748	3,146,843
Prepayments	3,041,561	1,789,703	3,712,858	2,358,651
<b>Total current assets</b>	<b>1,450,470,938</b>	<b>1,301,567,239</b>	<b>1,770,590,147</b>	<b>1,715,335,484</b>
<b>Fixed assets</b>				
Financial fixed assets -				
Investments (Notes 1 & 5)	28,657,904	28,871,060	34,982,800	38,049,170
Other financial fixed assets	673,778	912,505	822,481	1,202,593
<b>Total fixed assets</b>	<b>29,331,682</b>	<b>29,783,565</b>	<b>35,805,281</b>	<b>39,251,763</b>
<b>Total assets</b>	<b>1,479,802,620</b>	<b>1,331,350,804</b>	<b>1,806,395,428</b>	<b>1,754,587,247</b>
<b>Liabilities and net worth</b>				
<b>Current liabilities</b>				
Creditors - third parties	13,752,881	8,900,808	16,788,210	11,730,386
Payables under securities loan agreement (Note 4)	113,122,277	91,580,608	138,088,364	120,694,083
Accruals (Note 13)	10,477,360	8,323,131	12,789,875	10,969,056
Deferred income (Notes 2 & 6)	9,531,322	4,681,344	11,635,104	6,169,523
<b>Total current liabilities</b>	<b>146,883,840</b>	<b>113,485,891</b>	<b>179,301,553</b>	<b>149,563,048</b>
<b>Total liabilities</b>	<b>146,883,840</b>	<b>113,485,891</b>	<b>179,301,553</b>	<b>149,563,048</b>
<b>Net worth</b>				
Share capital (Note 6)	33,722	33,722	50,000	50,000
Legal reserve (Note 6)	6,744	6,744	10,000	10,000
Endowments (Notes 1 & 6)	572,000,000	572,000,000	773,352,000	773,352,000
Cumulative excess of income over expenditure per statement attached (Note 6)	760,869,433	645,819,191	985,116,356	840,599,999
Cumulative translation adjustment (Notes 1 & 6)	8,881	5,256	(131,434,481)	(8,987,800)
<b>Net worth</b>	<b>1,332,918,780</b>	<b>1,217,864,913</b>	<b>1,627,093,875</b>	<b>1,605,024,199</b>
<b>Total liabilities and net worth</b>	<b>1,479,802,620</b>	<b>1,331,350,804</b>	<b>1,806,395,428</b>	<b>1,754,587,247</b>

**Consolidated Statement of Income and Expenditure  
for the year ended December 31, 2006**

	<u>USD</u>		<u>CHF</u>	
	2006	2005	2006	2005
<b>Investment income</b>				
Interest	10,367,045	8,883,601	13,191,687	10,997,885
Dividends	8,247,142	7,863,299	10,494,488	9,734,764
Earnings from short term investments and other investment income	355,383	118,574	452,225	146,795
Income from securities lending (Note 4)	370,230	300,327	471,118	371,805
<b>Total investment income</b>	<b>19,339,800</b>	<b>17,165,801</b>	<b>24,609,518</b>	<b>21,251,249</b>
<b>Other gains from investment activities</b>				
Net realised gains on investment transactions (Notes 2 & 3)	50,585,867	86,192,693	64,370,516	106,706,554
Net unrealised appreciation / (depreciation) of investments (Notes 2 & 3)	110,526,675	(14,299,542)	140,645,194	(17,702,833)
Unrealised foreign exchange gains / (losses) (Note 2)	638,764	(1,386,205)	(918,641)	1,923,639
Net income of unconsolidated subsidiary (Note 5)	1,582,000	744,000	2,013,095	921,072
<b>Total other gains from investment activities</b>	<b>163,333,306</b>	<b>71,250,946</b>	<b>206,110,164</b>	<b>91,848,432</b>
<b>Expenditure related to investment activities</b>				
Management, custodian & other fees	8,458,567	7,751,170	10,763,526	9,595,948
Administration expenses	1,383,850	655,823	1,760,949	811,909
<b>Total expenditure related to investment activities</b>	<b>9,842,417</b>	<b>8,406,993</b>	<b>12,524,475</b>	<b>10,407,857</b>
<b>Net gain from investment activities</b>	<b>172,830,689</b>	<b>80,009,754</b>	<b>218,195,207</b>	<b>102,691,824</b>
<b>Medical research related income</b>				
Research external funding (Notes 2 & 6)	32,862,563	26,910,371	40,975,320	33,887,258
License fees and royalties	10,081,342	4,925,492	12,824,888	6,097,686
Contributions	2,800,000	2,700,000	3,563,025	3,342,543
Other	411,867	182,290	523,939	225,669
<b>Total medical research related income</b>	<b>46,155,772</b>	<b>34,718,153</b>	<b>57,887,172</b>	<b>43,553,156</b>
<b>Medical research related expenditure</b>				
Salaries & social benefits	54,131,040	54,622,134	68,867,478	67,621,580
Laboratory expenditure	13,521,199	13,788,990	17,201,203	17,070,600
Equipment & other assets (Note 2)	4,057,080	4,388,642	5,161,513	5,433,082
Leasehold improvements (Note 2)	404,293	316,824	514,285	392,214
Other	26,972,629	27,904,922	34,355,962	34,546,135
<b>Total medical research related expenditure</b>	<b>99,086,241</b>	<b>101,021,512</b>	<b>126,100,441</b>	<b>125,063,611</b>
<b>Excess of income over expenditure</b>				
Excess of income over expenditure for year	119,900,220	13,706,394	149,981,938	21,181,369
Excess of income over expenditure at beginning of year	645,819,191	632,362,005	840,599,999	820,548,288
Net increase in restricted funds (Note 6)	(4,849,978)	(249,208)	(5,465,581)	(1,129,658)
<b>Excess of income over expenditure at end of year</b>	<b>760,869,433</b>	<b>645,819,191</b>	<b>985,116,356</b>	<b>840,599,999</b>

**Consolidated Statement of Cash Flows  
for the year ended December 31, 2006**

	<u>USD</u>		<u>CHF</u>	
	2006	2005	2006	2005
<b>Operating activities</b>				
Medical research related income	46,155,772	34,718,153	57,887,172	43,553,156
Medical research related expenditure	(99,086,241)	(101,021,512)	(126,100,441)	(125,063,611)
Excess of operating expenditure over income	(52,930,469)	(66,303,359)	(68,213,269)	(81,510,455)
Net change in receivables and payables relating to operations	4,182,452	(89,960)	5,322,170	(111,370)
<b>Net cash used by operating activities</b>	(48,748,017)	(66,393,319)	(62,891,099)	(81,621,825)
<b>Investment activities</b>				
Net gain from investment activities	172,830,689	80,009,754	218,195,207	102,691,824
Dividends from Universe Tankships Inc. (Notes 1 & 5)	3,500,000	0	4,603,550	0
Net realised gain on investment transactions	(50,585,867)	(86,192,693)	(64,370,516)	(106,706,554)
Net unrealised (appreciation) / depreciation of investments	(110,526,675)	14,299,542	(140,645,194)	17,702,833
Net unrealised (gain) / loss on forward foreign currency contracts	(141,017)	1,196,594	(179,445)	1,481,383
Net (income) of unconsolidated subsidiary (Note 5)	(1,582,000)	(744,000)	(2,013,095)	(921,072)
Net change in receivables and payables relating to investing activities	609,552	(46,153)	775,655	(57,137)
Purchase / acquisition of securities	(627,488,877)	(1,101,333,737)	(798,479,596)	(1,363,451,166)
Proceeds from sale / disposal of securities	676,917,614	1,163,128,619	861,377,664	1,439,953,230
Effects of exchange movements	144,642	(1,203,833)	28,893	(2,586,430)
<b>Net cash generated by investment activities</b>	63,678,061	69,114,093	79,293,123	88,106,911
<b>Net increase in liquid funds and cash deposits</b>	14,930,044	2,720,774	16,402,024	6,485,086
<b>Liquid funds and cash deposits at beginning of year</b>	18,758,175	16,037,401	24,721,407	18,236,321
<b>Liquid funds and cash deposits at end of year</b>	33,688,219	18,758,175	41,123,431	24,721,407

**Notes to the Consolidated Financial Statements**

**as at December 31, 2006**

**1 Accounting principles and scope of consolidation**

**Basis of presentation**

The accompanying consolidated financial statements of the Ludwig Institute for Cancer Research are presented in accordance with generally accepted accounting principles in Switzerland (Financial Reporting Standards – Swiss GAAP FER). The accounting standard FER 21 has been adopted as from the year 2003.

**Scope of consolidation**

These consolidated financial statements include the financial results of the Ludwig Institute for Cancer Research (the “Institute”), a non-profit organization incorporated in Switzerland and LICR Fund, Inc. (the “Fund”), a non-profit membership corporation incorporated in Delaware, U.S.A. which was established to receive, hold and invest funds on behalf of the Institute and which is effectively controlled by the Institute. The consolidation is based on the audited financial statements of the Institute and the Fund. All inter-company transactions and balances have been eliminated and no minority interests exist.

Universe Tankships, Inc. (UTI), a wholly owned subsidiary of the Institute, which is not managed by the Institute on a unified basis, has been accounted for using the equity method.

**Nature of operations**

The Institute carries out its scientific and clinical activities at its branches and a newly established Centre for Clinical Sciences in conjunction with hospitals in university medical centres. The Institute's research branches are situated in Brussels, Lausanne, London (St. Mary's [closed August 2005] and University College), Melbourne (Parkville), New York, San Diego, Sao Paulo, Stockholm and Uppsala. The Clinical Centre is located in Melbourne (Austin). In addition, administrative offices are maintained in Lausanne, London (closed June 2006), New York and Zurich. The Institute has a broadly based research program that addresses the challenge of cancer using the disciplines of biochemistry, cell biology, genetics, immunology, molecular biology and virology.

**Foreign currency translation**

CHF financial statements

The consolidated accounts presented in CHF include the Institute's financial statements denominated in CHF and the Fund's financial statements denominated in USD. Translation of the Fund's Balance Sheet into CHF is achieved by using the exchange rate prevailing at year-end with the exception of endowments and accumulated earnings, which are translated at historical rates. The Fund's income and expenditure are translated at the average rate existing during the year. The resulting translation difference is shown as a separate component of equity. The currency translation adjustment, which arises on the translation of the Fund's USD based financial statements into CHF is being accumulated with effect from January 1, 1994 and has not been calculated retrospectively.

USD financial statements

The consolidated accounts presented in USD include the Institute's financial statements denominated in USD and the Fund's financial statements denominated in USD. As the Institute has historically maintained USD accounts in addition to its CHF accounts, there is no need to perform a translation for the purposes of preparing a consolidation in USD. Accordingly, there is no translation effect in the consolidated USD accounts apart from share capital and legal reserve. The share capital and legal reserve are translated into USD at the rate ruling on January 1, 1994, being the initial year in which consolidated financial statements were prepared. The resulting translation difference is shown as a separate component of net worth.

Foreign exchange differences, which arise from foreign exchange in preparing the Institute's USD accounts, are included on a yearly basis in the excess of income over expenditure for the year.

## 2 Accounting policies

### Liquid funds and short-term cash investments

Cash at banks and funds on call available within 48 hours are classified as liquid funds. Cash deposits fixed for periods of longer than 48 hours are classified as short-term cash investments.

### Investments and related income

Investments are valued at the last reported sales price for the year, as quoted on major securities exchanges. Securities that are not traded on major securities exchanges are valued based on quotations received from leading brokers. Forward foreign currency contracts are valued based on the average of closing bid and asked quotations from banks and brokers. Investments in limited partnerships are valued based on the Fund's underlying holding in these partnerships, which represent market values as determined by the general partners of the partnership. Unrealized appreciation and depreciation on investments as at the year-end are included in the excess of income over expenditure for the year.

Securities transactions are recorded on the trade date. Realized gains and losses from security transactions are calculated on the average cost basis.

### Foreign exchange transactions

Assets and liabilities denominated in foreign currencies are translated into the reporting currencies at the closing rate of exchange at year-end. Income and expenditure denominated in foreign currencies are translated into the reporting currencies on the following basis: -

- i) Dividend income and contributions are translated at the average monthly rates as published by the Swiss tax authorities of the month in which the dividends and contributions have been received.
- ii) Research expenditure and research external funding income are translated at the yearly average rates of the monthly rates as published by the Swiss tax authorities.
- iii) Purchases and sales of investments securities are translated at the rates of exchange prevailing on the respective dates of such transactions.
- iv) All other income and expenditure are translated at the yearly average rates of the monthly rates as published by the Swiss VAT authorities.

Net realized and unrealized foreign exchange differences include gains and losses on foreign currency positions and changes in the value of other assets and liabilities arising as a result of changes in exchange rates.

### Research external funding

External funding received from any outside source, whether of a cash or a non-cash nature, is recorded in the Institute's books of account upon receipt. External funding received (in terms of restricted funds) is taken to income when the corresponding expenditure is incurred. Any unspent restricted funds are deferred to future accounting periods. Unrestricted funds received are taken to income in the year of receipt. External funding pledged, but not received where expenditure has been incurred, is taken to account as income and is accounted for as receivable pending receipt.

### Joint ventures

The Institute has entered into joint ventures with affiliated hospitals and research institutions to primarily fund research expenditures on a joint basis. Income received and expenditure incurred under such joint ventures is accounted for by the method of proportional consolidation.

### Tangible and intangible assets

Expenditure on equipment & other assets and leasehold improvements is charged in full against revenue in the year it is incurred in accordance with accepted practice for cancer research organizations. The resale value of research equipment is minimal and no significant income is generated there from.

The value of intangible assets is not recorded in the balance sheet. All research expenditure, including the cost of patenting and licensing intellectual property is charged in full against revenue in the year it is incurred.

### Taxes

The Institute and the Fund are tax-exempt organizations and accordingly are not subject to income taxes. Withholding taxes on foreign dividends and interest have been provided for in accordance with the applicable countries' tax rates.

### 3 Current assets - investments

Investments, at fair value, held at December 31, 2006 and 2005 were as follows: -

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Invested cash and cash equivalents				
- USD	36,772,671	35,782,346	44,888,399	47,157,554
- Non-USD currencies	895,077	19,971,338	1,092,620	26,320,226
Equity investments	633,093,818	597,232,018	772,817,624	787,092,077
Fixed income investments				
- Government	134,234,081	160,825,613	163,859,543	211,952,075
- Other	78,180,885	10,239,657	95,435,406	13,494,844
Alternative investments (limited partnerships)	399,538,081	357,535,195	487,716,135	471,195,633
Due from brokers	8,734,319	24,821	10,661,983	32,712
Net unrealized loss on foreign currency contracts	(1,163,582)	(1,304,599)	(1,420,385)	(1,719,331)
Investments, at fair value	1,290,285,350	1,180,306,389	1,575,051,325	1,555,525,790
Investments, at cost	949,035,857	949,583,571	1,158,488,071	1,251,456,188

### 4 Collateral under securities loan agreement

By agreement, the custodian, acting on behalf of the Fund, may lend Fund securities to broker-dealers. The Fund receives as compensation a portion of the interest earned on the investment of the cash received as collateral. The Fund continues to earn dividends and interest on the securities loaned. The loans are secured by cash collateral at least equal, at all times, to the market value of the securities loaned plus accrued dividends and interest, if any. If the borrower defaults and the value of the collateral is inadequate, or if bankruptcy proceedings are commenced with respect to the borrower of the security, the custodian will assume such risk and indemnify the Fund.

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Market value of securities loaned	108,036,909	88,426,368	131,880,655	116,537,110
Value of collateral	113,122,277	91,580,608	138,088,364	120,694,083

## 5 Fixed assets - investments

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
<b>Universe Tankships, Inc.</b>				
Share capital	5,103,000	5,103,000	6,229,232	6,725,244
Percentage owned	100%	100%	100%	100%
Net assets at January 1	28,866,000	28,122,000	38,042,502	31,977,526
Dividends paid to the Institute	(3,500,000)	0	(4,603,550)	0
Net income for the year	1,582,000	744,000	2,013,095	921,072
Translation adjustment	0	0	(2,556,623)	5,143,904
Net investment at December 31	26,948,000	28,866,000	32,895,424	38,042,502
<b>PIramed Ltd</b>				
Net investment	861	756	1,052	996
Percentage owned	4%	8%	4%	8%
<b>XCellSyz Ltd</b>				
Net investment	0	7	0	9
Percentage owned	0%	1%	0%	1%
<b>Lymphatix Ltd</b>				
Net investment	4,804	4,297	5,864	5,663
Percentage owned	36%	36%	36%	36%
<b>Vegenics Ltd</b>				
Net investment	1,702,512	0	2,078,352	0
Percentage owned	23%	0%	23%	0%
<b>Life Sciences Pharmaceuticals, Inc.</b>				
Net investment	1,500	0	1,831	0
Percentage owned	15%	0%	15%	0%
<b>Recepta Biopharma S.A.</b>				
Net investment	227	0	277	0
Percentage owned	49%	0%	49%	0%
Total net investments	28,657,904	28,871,060	34,982,800	38,049,170

Universe Tankships, Inc.'s primary business function is to oversee the management of its remaining investments and to provide administrative services to related parties.

Universe Tankships, Inc. has been accounted for using the equity method.

All other investments were acquired as part of licensing arrangements and, with the exception of XCellSyz Ltd, which has been written off in 2006, are valued at acquisition cost. In 2006, the Institute acquired 13.5 million shares of Vegenics Ltd, at a nominal value of AUD 0.16 per share. Further in 2006, the Institute acquired 1.5 million shares of Life Sciences Pharmaceuticals, Inc. at a nominal value of USD 0.001 per share and 490 shares of Recepta Biopharma S.A at a nominal value of BRL 1.00 per share.

## 6 Capital changes

### Net worth

The share capital consists of 50 fully paid shares of nominal value CHF 1,000 each. The shareholders do not have any interest in the assets or income of the Institute. Their sole power is to vote the shares in accordance with the exclusively charitable and scientific purposes of the Institute.

<u>USD</u>	Share capital	Legal reserve	Endowments	Cumulative excess of income	Cumulative translation adjustment	Total net worth
Balance at January 1, 2006	33,722	6,744	572,000,000	645,819,191	5,256	1,217,864,913
Excess of income over expenditure	0	0	0	119,900,220	3,625	119,903,845
Net increase in restricted funds	0	0	0	(4,849,978)	0	(4,849,978)
Balance at December 31, 2006	33,722	6,744	572,000,000	760,869,433	8,881	1,332,918,780

<u>CHF</u>	Share capital	Legal reserve	Endowments	Cumulative excess of income	Cumulative translation adjustment	Total net worth
Balance at January 1, 2006	50,000	10,000	773,352,000	840,599,999	(8,987,800)	1,605,024,199
Excess of income over expenditure	0	0	0	149,981,938	(122,446,681)	27,535,257
Net increase in restricted funds	0	0	0	(5,465,581)	0	(5,465,581)
Balance at December 31, 2006	50,000	10,000	773,352,000	985,116,356	(131,434,481)	1,627,093,875

Included in the Current year movements is a decrease of USD 34,326 (CHF 83,255), which is due to the reduction of a provision in respect of the Federated Pension Scheme, which was set up in accordance with IAS19. This has been reversed to follow the provisions of the revision of FER16.

### Endowments

Universe Tankships, Inc. made endowments to the Fund in the following years: -

Description	Year		Amount		Amount
Initial Endowment	1990	USD	500,000,000	CHF	673,500,000
Second Endowment	1991	USD	24,000,000	CHF	36,588,000
Third Endowment	1992	USD	48,000,000	CHF	63,264,000
Total		USD	572,000,000	CHF	773,352,000

### Cumulative excess of income over expenditure

The Statutes of the Institute stipulate that the balance of income shall not be distributed to shareholders and accordingly the available balance of income is carried forward.



Changes in deferred income (restricted funds)

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Fund balances at January 1	4,681,344	4,432,136	6,169,523	5,039,865
Usage of funds	(3,697,101)	(3,014,340)	(4,872,401)	(3,427,721)
New funds	8,457,539	3,362,221	10,324,176	4,431,052
Exchange rate adjustments	89,540	(98,673)	13,806	126,327
Fund balances at December 31	9,531,322	4,681,344	11,635,104	6,169,523
Net change of fund balances	4,849,978	249,208	5,465,581	1,129,658

In accordance with Swiss GAAP FER 21 as from January 1, 2003 all changes in restricted funds balances are shown gross as part of the Consolidated Statement of Income and Expenditure (see Note 2, Accounting policies, Research external funding).

## 7 Cash flow statement

### Tangible fixed assets

During the years ended December 31, 2006 and December 31, 2005 the purchase of equipment & other assets and expenditure on leasehold improvements, amounting to CHF 5,675,798 (USD 4,461,373) and CHF 5,825,296 (USD 4,705,466) respectively, was charged in full against revenue in the years in which it was incurred. Receipts arising from the disposal of equipment & other assets amounting to CHF 8,322 (USD 6,540) and CHF 121,983 (USD 98,533) respectively were credited in full to revenue in the years in which the proceeds were received.

## 8 Forward currency contracts

The Fund enters into forward contracts in order to hedge its exposure to changes in foreign currency rates on its assets and liabilities denoted in foreign currencies. In 2006 and 2005 unrealized gains of CHF 238,385 (USD 195,285) and CHF 2,141,695 (USD 1,625,081) and unrealized losses of CHF 1,658,769 (USD 1,358,867) and CHF 3,861,026 (USD 2,929,680) respectively, arising from contracts open at year end, are included in the statement of income and expenditure.

The values of the forward foreign currency contracts held by the Fund translated at the relevant year-end exchange rates were as follows in units of thousand: -

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Forward currency sales	113,808	191,262	138,926	252,064
Forward currency purchases	114,972	192,567	140,346	253,784

**9 Lease commitments**

<i>Year</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
2006	0	4,292,188	0	5,656,675
2007	4,553,416	3,379,284	5,558,371	4,453,564
2008	3,386,932	3,002,869	4,134,441	3,957,481
2009	2,703,374	2,621,678	3,300,018	3,455,112
2010	2,583,743	2,523,965	3,153,985	3,326,326
2011	2,530,227	2,474,661	3,088,656	3,261,358
2012-2016	6,249,114	6,042,162	7,628,336	7,962,955
2017-2021	130,164	121,150	158,896	159,662
Lease commitments not recorded in the balance sheet	22,136,970	24,457,957	27,022,703	32,233,133

**10 Fire insurance values**

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Equipment and other assets	77,312,648	80,534,065	94,375,549	106,135,844
Leasehold improvements	31,310,433	34,792,202	38,220,646	45,852,643
Total insurance values	108,623,081	115,326,267	132,596,195	151,988,487

**11 Liabilities to pension funds**

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Current liabilities	42,962	32,093	52,444	42,295

Institute-wide, the annual cost of the employer's contributions in 2006 and 2005 amounted to CHF 5,814,589 (USD 4,569,421) and CHF 5,782,791 (USD 4,671,075) respectively.

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Listed below are all the pension schemes for which information is required under the application of the revision of FER 16, which has been effective as from January 1, 2006. All amounts are in units of thousand: -

Name / Country	Surplus / (Shortfall) 31.12.06 USD	Share of Surplus / (Shortfall) 31.12.06 USD	Share of Surplus / (Shortfall) 31.12.05 USD	Change of Surplus / (Shortfall) 2006 USD	Contributions 2006 incl change surplus / (shortfall) USD	Contributions 2006 USD	Contributions 2005 USD
Federated Pension Scheme (GB)	550	0	0	0	58	58	256
Vita Collective Insurance (CH)	N/A	0	0	0	362	362	376
Winterthur Collective Insurance (CH)	N/A	0	0	0	276	276	292

Name / Country	Surplus / (Shortfall) 31.12.06 CHF	Share of Surplus / (Shortfall) 31.12.06 CHF	Share of Surplus / (Shortfall) 31.12.05 CHF	Change of Surplus / (Shortfall) 2006 CHF	Contributions 2006 incl change surplus / (shortfall) CHF	Contributions 2006 CHF	Contributions 2005 CHF
Federated Pension Scheme (GB)	671	0	0	0	74	74	316
Vita Collective Insurance (CH)	N/A	0	0	0	460	460	465
Winterthur Collective Insurance (CH)	N/A	0	0	0	351	351	362

The Federated Pension Scheme as referred to above has been accounted for as a defined benefit scheme in accordance with Swiss GAAP FER16 as from 2002. Employer contributions are fixed on an annual basis. It is the employer's responsibility to finance any potential shortfall of the scheme. However, there is no requirement to provide shortfall financing at the current time.

The underlying actuarial assumptions, used in the calculation are based on current economic circumstances and tax exemption status, are as follows: -

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<i>Description</i>	<i>2006</i>	<i>2005</i>
Discount rate	5.10%	4.90%
Expected rate of return	6.90%	7.00%
Annual increase of future salaries	4.10%	3.50%

An actuarial valuation is carried out triennially and in addition, valuations in accordance with IAS19 are carried out annually.

Vita Collective Insurance disclosed a cover ratio of approx 104 % for 2005, whereas no figures were communicated for 2006. The total surplus is attributed to the scheme and not to the employer.

The Winterthur Collective Insurance does not disclose any figures on surplus or shortfall. All risks (old age, disability, death benefits) are insured with Winterthur Life, which also invests the respective assets independently. As at December 31, 2006, the scheme does not have a shortfall and there is therefore no requirement to provide shortfall financing.

Branches and offices with defined contribution schemes are located in Belgium, Brazil, Sweden and the United States of America. The branches in Australia and Great Britain are registered employers with the local university pension schemes, which set the level of contributions based on the advice of the schemes' actuaries. In view of the size of the schemes and the Institute's limited participation in the management of the schemes, the two university schemes are treated as defined contribution schemes. The contributions are calculated as a percentage of the insured salary. No obligations or benefits exist versus these schemes.

Following legislation introduced in September 2005 in Great Britain, special provisions apply in the event of either an employer winding up a pension scheme or causing a cessation event to occur as a registered employer of a multi-employer pension scheme. In these cases, the employer is required to make additional funding available to buy-out all liabilities with an insurance company (defined either as "buy-out-debt" or "Section 75 debt") or, for multi-employer schemes with continuing indirect participation, to enter into an approved withdrawal arrangement ("AWA"). Subject to agreement with the trustee of the pension scheme and the pension regulator, under an AWA, a guarantee is to be provided by the employer to the trustee of the pension scheme and the additional funding requirement is deferred until the trustee requires it to be paid or the scheme commences wind-up.

Liability incurred by buying out debt with insurance companies is invariably significantly greater than that calculated using traditional actuarial valuations.

Examples of cessation events when buy-out debt shall become due are as follows:-

- The last remaining active member ceases to be active for any reason;
- The institution withdraws from a multi-employer scheme;
- The institution merges or amalgamates with another institution to become a single new institution or
- The institution changes its identity and its assets and obligations transfer to a new institution.

The Institute's Board of Directors has reviewed the position taking into account the various on-going employment situations in Great Britain. As both the Federated Pension Scheme and the Universities Superannuation Scheme continue to have active members, and it is intended to retain the two schemes for active members, the Board has concluded that there is no need to make provision for "buy-out-debt" as at December 2006 and 2005.

In the event that a "buy-out-debt" liability would be incurred for the two pension schemes in Great Britain, the cost thereof, based on information provided by the respective trustee and actuary, is estimated at CHF 11.9 million (USD 9.8 million) as of December 31, 2006.

## 12 Directors' emoluments

The members of the Institute's Board of Directors constitute all of the Board of Directors of the Fund. In 2005, the Chief Executive Officer and the President of the Institute were members of both Boards of Directors. In 2006, the President of the Institute was a member of both Boards of Directors.

Emoluments consist of (i) Directors' fees, (ii) Salaries and social benefits and (iii) remuneration for special projects. Directors' fees were paid by the Institute and the Fund; Salaries and social benefits were paid by the Institute and The Ludwig Group, Inc., a subsidiary company and Other remuneration was paid by the Institute.

<i>Description</i>	<i>USD</i>		<i>CHF</i>	
	<i>2006</i>	<i>2005</i>	<i>2006</i>	<i>2005</i>
Directors' fees	287,868	304,621	366,313	377,120
Salaries & social benefits	1,091,178	1,416,041	1,388,524	1,753,059
Other remuneration	108,750	0	138,384	0
<b>Total emoluments</b>	<b>1,487,796</b>	<b>1,720,662</b>	<b>1,893,221</b>	<b>2,130,179</b>

In 2005, the Chairman of the two Boards, the Chief Executive Officer and the President of the Institute received Salaries and social benefits but did not receive Directors' fees. In 2006, the Chairman of the two Boards and the President of the Institute received Salaries & social benefits, but did not receive Directors' fees. Also in 2006, one Board member received remuneration for a special project writing a history of the Institute and received Directors' fees for the period January 1, 2006 to June 30, 2006.

The remaining members of the two Boards received Directors' fees but did not receive Salaries & social benefits.

The remuneration of the two Boards of Directors, the Chairman of the two Boards and the President of the Institute are subject to review by both the Institute Shareholders' Compensation Committee and the Institute Board Compensation Committee, which were established in 1998. Recommendations made by the Shareholders' Compensation Committee set the outside limits of compensation which the Boards of Directors establish for the Chairman of the Boards, the President of the Institute and for the members of the Boards.

At December 31, 2006 and 2005, there were nine and eleven members respectively of both the Board of Directors of the Institute and the Fund.

## 13 Value added tax

The Institute is registered for value added tax in Switzerland.

In September 2004, the Federal Tax Administration carried out an audit at the Institute's Zurich office. In an informal report, the Federal Tax Administration questioned the method used by the Institute in calculating the reduction of the input tax for the years 2000 to 2004.

The report set out three different methods to calculate the input tax reduction with claims ranging for 2003 - the year audited in detail - between CHF 889,937 (USD 782,637) and CHF 929,802 (USD 817,696).

In May 2005 the Federal Tax Administration revised their initial position and invoiced the Institute for a total amount of CHF 1,739,606 (USD 1,319,983) with amounts ranging between CHF 301,866 (USD 229,051) and CHF 374,404 (USD 284,091) for the years 2000 to 2004.

The Institute's management continues to be not in agreement with these calculations and its tax advisors wrote to the Federal Tax Administration in June 2005 setting out again the Institute's position. The Federal Tax Administration has not, as yet, responded to this letter.

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In the opinion of management, based on professional advice received, the Institute expects a further substantial reduction in the claim by the Federal Tax Administration. However, taking account of the developments that took place in 2005, for the sake of prudence, a provision of CHF 1,205,000 (USD 914,333) has been included in the financial statements 2005. In 2006 this accrual was increased to CHF 1,435,000 (USD 1,175,555).

### 14 Related party transactions

Effective January 1, 2006, the Institute and the Fund entered into new administrative service agreements with The Ludwig Group, Inc. (LGI), a wholly owned subsidiary of Universe Tankships, Inc., Delaware USA. These new agreements replace the former contracts between the two parties, which were in effect as from January 1, 1996.

Fees paid by the Institute and the Fund under the service agreements including occupancy related costs amounted to CHF 6.0 Mio (USD 4.7 Mio) in 2006 and CHF 3.8 Mio (USD 3.1 Mio) in 2005.

Payables in favour of LGI by the Institute and the Fund as at December 31, 2006 and December 31, 2005 amounted to CHF 1,260,000 (USD 1,032,000) and CHF 996,000 (USD 756,000) respectively.

### 15 Expenditure analysis

For fiscal reporting purposes, expenditure is analyzed between programme service expenditure, management and general expenditure and fundraising expenditure. For the year 2005 (the latest year where analysis data is currently available), CHF 110,842,841 (USD 89,533,797) were reported as programme service expenditure, CHF 25,869,018 (USD 20,895,814) as management and general expenditure, and CHF 1,277,621 (USD 1,032,004) as fundraising expenditure on a consolidated basis.

In 2004 CHF 112,116,273 (USD 88,594,447) were reported as programme service expenditure, CHF 21,502,286 (USD 16,991,139) as management and general expenditure, and CHF 1,289,781 (USD 1,019,187) as fundraising expenditure on a consolidated basis.

## Performance Report

### Purposes of the organization

The purpose of the Ludwig Institute for Cancer Research (“the Institute”) is to originate and conduct incisive long-range research programs to be carried out on a continuing basis in conjunction with hospitals in established medical centres, directed to the ultimate goal of controlling and eradicating cancer.

The Institute is a Swiss not-for-profit organization with around 900 scientists, clinicians, students and support staff in various countries who are focused on multiple aspects of basic and clinical cancer research, including cancer genetics and genomics, tumour immunology, and cell growth and differentiation. The Institute is committed to translating its basic research discoveries into therapeutic practices and is an active sponsor of its own clinical trials.

Research activities are organized through nine Branches and a newly-established *Melbourne Centre for Clinical Sciences* (“Melbourne Centre”) located in seven different countries. Each Branch and the Melbourne Centre occupy defined space, have their own Institute staff, and function in close association with a local university and/or a not-for-profit hospital. A number of affiliated individual investigators and laboratories complement the Institute's Branch network and extend its global reach.

The Institute does not make grants and contributions to others. Instead, it applies its resources to its own cancer research activities.

Continued success in attracting external funding to support its core research programs was made by the Institute. In 2006, it received CHF 25.9 million (USD 20.9 million) from industrial, philanthropic and government sources. In addition, external funding for fellow- and studentships amounting to CHF 15.1 million (USD 12.0 million) was taken to income in 2006. The total amount received of CHF 41.0 million (USD 32.9 million) was 20.9 % (CHF) and 22.3 % (USD) higher than the 2005 amount received of CHF 33.9 million (USD 26.9 million), primarily due to higher patent cost recovery from collaborations with industry and higher patent cost recovery from income due to co-owners of Intellectual Property. Research external funding income represented 32.5 % (CHF) and 33.2 % (USD) of the total medical research related expenditure during 2006.

In September 2006, the Institute received notice of a grant of USD 18 million for the years 2006 to 2009 from the international foundation *The Atlantic Philanthropies*, which has an ultimate goal of making lasting changes for human benefit. USD 2.5 million (CHF 3.2 million) was received by the Institute and is included in the figures stated above.

The Institute is committed to translating its basic research discoveries into therapeutic practices and is an active sponsor of its own clinical trials.

### Managing bodies and senior staff

The Statutes and By-laws of the Institute determine the responsibilities and the authority of the following organs of the company:

- the Board of Directors
- the Management, comprising the Executive Officers, and
- the Branch and Melbourne Centre Directors.

The Board is elected at the General Meeting of Shareholders held each year in June for a one-year term of office. The members of the Institute Board of Directors are automatically members of the Board of Directors of LICR Fund, Inc.

The individuals who served as members of the Board of Directors of both the Institute and the Fund in 2006 were as follows: - Dr. Lloyd J. Old, (Chairman); Mr. R Palmer Baker Jr., (to June 2006); Mr. Alfred Berger; Mr. Georges-André Cuendet, (to June 2006); Mr. Olivier Dunant; Mr. John D. Gordan III; Dr. Adolf E. Kammerer; Mr. Pierre Languetin; Mr. Edward A. McDermott Jr.; Sir Derek Roberts and Prof. Jane Royston.

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The Executive Officers of the Institute constitute its management and in 2006 consisted of the President; the Executive Directors; the Chief Financial Officer and the Secretary to the Board of Directors. These posts were held as of December 31, 2006, by the following individuals: -

President	Mr. Edward A McDermott Jr.
Executive Director for Clinical and Translational Research	Dr. George D. Demetri
Executive Director for Intellectual Property and Licensing	Dr. Jonathan Skipper
Executive Director for Laboratory Science and Technology	Dr. Richard Kolodner
Executive Director for Programs and Operations	Dr. Andrew Simpson
Chief Financial Officer and Secretary to the Board	Mr. Richard D. J. Walker

The Executive Officers were supported by the Directors of the following Administration Offices: -

Office of Academic Review	Dr. Ellen Puré
Office of Clinical Trials Management	Dr. Eric Hoffman
Office of Communications	Dr. Sarah White
Office of Information Technology	Dr. C. Victor Jongeneel

The Executive Officers and Directors of the Offices are all employed on open and rolling contracts with varying notice periods.

The Institute has a Scientific Advisory Committee that provides advice to the President and the Executive Officers on scientific matters as well as on the scientific staff review process. The individuals who served as members of the Committee in 2006 were as follows: – Mr. Edward A. McDermott Jr. (Chairman), Dr. José Baselga (from July 2006), Prof. Douglas T. Fearon, Dr. Samuel Hellman, Dr. Lucille Shapiro and Dr. Phillip Sharp. Ms. Susan Andrews was Secretary to the Committee.

The Institute effects its research activities primarily through its Branches and the Melbourne Centre, which are long-term arrangements. The Branches and the Melbourne Centre are managed by a Director, who is responsible for the scientific program and all administrative arrangements of the research site.

The Institute entered into an agreement with the University of Oxford in December 2006 for a six-year period, commencing August 2007, to open a new research site. Some staff at the London University College Branch shall be relocating to the new research site in Oxford. Temporary premises shall be used from May / June 2007 and during the summer of 2007. The new premises shall be located at the South Headington Campus of the University of Oxford.

The Branch / Centre Directors in post during 2006 were: -

Brussels Branch	Dr. Thierry Boon
Lausanne Branch	Dr. Jean-Charles Cerottini (to August 2006)
	Dr. Hugh Robson MacDonald (Acting Director from September 2006)
London University College Branch	Dr. Xin Lu
Melbourne Branch	Dr. Antony W. Burgess
Melbourne Centre	Dr. Andrew Scott (from April 2006)
New York Branch	Dr. Lloyd J. Old
San Diego Branch	Dr. Webster K. Cavenee
Sao Paulo Branch	Dr. Luisa Lina Villa
Stockholm Branch	Dr. Ralf F. Pettersson (to September 2006)
	Dr. Thomas Perlmann (Acting Branch Director from September 2006)
Uppsala Branch	Dr. Carl-Henrik Heldin

All Branch / Centre Directors have been appointed Member of the Institute on a five-year rolling basis.

Various Executive Officers and Branch / Centre Directors hold academic and senior executive positions within the host university and hospital organizations and other scientific institutions with which the Ludwig Institute is associated.



## Results of work on Institute research programs in 2006

### Scientific results and publications

In 2006, the Institute initiated a randomized Phase II clinical trial testing the clinical efficacy of a cancer vaccine, NY-ESO-1/ISCOMATRIX™, for melanoma. This vaccine gave indications of a delay in recurrence of disease following resection and immunization in a Phase I trial sponsored and conducted by the Institute in Melbourne, Australia. The ensuing pivotal Phase II trial, which involves 100 patients and 18 sites in Great Britain, Australia and New Zealand, is the largest undertaken by the Institute's Office of Clinical Trials Management. All 100 patients were recruited in just four months. The study will be completed 18 months after the enrolment of the last patient.

Four Institute papers were recognized by the scientific community as having particular importance. A study from the Uppsala Branch, which described the functional characterization of a novel link between the synthesis of new cell walls and the control of cell growth and division, was featured on the front cover of the journal *Cell Cycle*. A paper from the San Diego Branch, which described the development and use of a method to quantitatively analyze dynamic chromosome condensation in living cells, was designated a 'Must Read' by the *Faculty of 1000 Biology*. The *Faculty of 1000 Biology* is a group of over 1000 scientists that highlights the most interesting papers in biology. A third study, from a collaboration between the Lausanne and London University College Branches, the Institute New York Office and Affiliates in London, utilized multiple technology platforms - a first - to establish the gene expression profile of normal and malignant epithelial cells in breast cancer. The paper has been one of the most 'highly accessed' (viewed and/or downloaded) from the open-access journal *Breast Cancer Research*. The journal editors also featured the study in a promotional email campaign to demonstrate the quality of articles appearing in *Breast Cancer Research*. Finally, a research paper from the San Diego Branch, which discovered a link between two cancer-relevant pathways central to the control of growth factor signalling and gene expression, was nominated as a 'Paper of the Week' by the *journal of biological chemistry*. This distinction - from the most cited biomedical research journal in the world - is awarded to those papers judged by the Journal's Editorial Board members and Associate Editors to rank in the top 1% of reviewed papers for significance and overall importance.

The Institute is committed to prompt and active dissemination of its research results. In the year 2006, Institute investigators published 401 scientific papers in recognized peer-reviewed journals.

The publication record by Branch / Centre is as follows: -

Brussels	24
Lausanne	44
London University College	43
Melbourne	29
Melbourne Centre	34
New York	37
San Diego	58
Sao Paulo	45
Stockholm	19
Uppsala	68
Total	401

### Clinical Trials

As part of its program of clinical discovery three new trials were inaugurated in 2006, bringing to 30 the number of trials open to patient accrual. A total of 221 patients were enrolled. By year end 2006, the Institute had nine active Investigational New Drug (IND) applications in the United States of America, two Drug Master Files (DMF) and two Investigational Medicinal Product Dossiers in the European Union in its clinical portfolio.

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### Patents

To ensure that the Institute is able to capitalize on its discoveries, it pursues a vigorous patent protection policy. In 2006, 13 patents were issued and 30 filed in the United States of America and a further 26 new international patent (PCT) applications were published. These patents cover research discoveries relating to growth factors, cytokines, signalling molecules, antibodies and human tumour antigens.

The Office of Intellectual Property and Technology Licensing is bringing these discoveries to the attention of the pharmaceutical and biotechnology industries as new candidates for licensing, with the ultimate goal of having the Institute discoveries developed into potential cancer therapies. In 2006, a landmark arrangement was the signing of an agreement with GSK Biologicals, one of the world's leading vaccine manufacturers, whereby GSK licensed a substantial portfolio of tumour-specific antigens, generated through the LICR Cancer Vaccine Program, and committed to taking several of them into Phase II/III clinical trials. The year also saw the creation of and the Institute's participation in three spin-off companies to explore the development of antibody therapies based on LICR research discoveries generated through the Targeted Antibody Program. One of these companies is the first oncology biotechnology company to be formed in Brazil (see note 5, 3<sup>rd</sup> paragraph, page 8).

### Material Transfer Agreements

The Institute entered into 451 material transfer agreements during 2006. These were mainly with academic institutions (439 agreements) whereby the Institute supplied reagents free of charge to the academic community, while twelve material transfer agreements were entered into with commercial organisations. One agreement may cover several reagents.

The material originated from the following locations: -

	<b>2006</b>	<b>2005</b>
Brussels	46	28
Lausanne	16	17
London Imperial College	0	5
London University College	78	74
Melbourne	48	59
Melbourne Centre	6	0
New York	15	23
San Diego	103	128
Sao Paulo	5	4
Stockholm	1	3
Uppsala	84	122
Affiliates/inventors from several Branches	49	108
Total	451	571

### Licensing / Royalties

In accordance with the objective of making scientific discoveries available to the general public, the Institute enters into agreements with commercial organizations having the substantial financial, management and technological resources necessary to develop Institute discoveries for therapeutic purposes.

The Institute was party to 119 license, sublicense, option and evaluation agreements with commercial organizations at the beginning of 2006. A further 24 agreements were signed during the year, while four agreements expired or were terminated with the result that at year end the portfolio comprised 139 agreements.

A number of these agreements are with companies selling Institute reagents for laboratory research purposes or with companies using Institute-developed reagents for in-house research purposes only. A total of 41 of these agreements relate to the development of therapeutic products. Two agreements relate to a therapeutic product presently on the market, GM-CSF (granulocyte macrophage colony stimulating factor), while the rest relate to products at various stages of development, from pre-clinical testing to Phase I, II and III clinical trials of the products.

GM-CSF is a broad stimulator of haematologic progenitor cells for patients with low white blood cell counts and under an Invention Administration Agreement with the Institute has been licensed to Schering-Plough Corp. and Immunex, Inc. and subsequently to Schering AG by Research Corporation Technologies Inc. (RCT), Tucson, Arizona. GM-CSF was co-invented with scientists at the Walter and Eliza Hall Institute for Medical Research (WEHI), Melbourne.

Sales of therapeutic products based on GM-CSF were in the order of USD 75 million for 2005. These products are currently sold by Schering AG through its wholly owned subsidiary company, Berlex, Inc., under the trademark Leukine.

Sales of other products licensed from the Institute for research and diagnostic purposes were in excess of USD 7 million.

The gross income to the Institute from license fees and royalty income totalled USD 14.0 million for 2006 and USD 8.0 million after co-owner and inventor sharing.

When appropriate, the Institute is working to facilitate the start-up of new companies using Institute-owned technology

### Human Resources

An important aspect of the Institute's developing programs is the training of outstanding young scientists who will in time join an emerging new generation of cancer investigators. During the year, 39 PhD students started and 29 completed their postgraduate training with the Institute. At December 31, 2006, the Institute was acting as sponsor to 141 postdoctoral fellows and 149 PhD students.

### Awards and Distinctions

The quality of the Institute's science continued to be internationally recognized. In the last year, the following distinctions and awards were received: -

#### Major awards and distinctions

- **Dr. Thierry Boon** (Brussels Branch) was elected Foreign Associate of the National Academy of Sciences, USA.
- **Dr. Don Cleveland** (San Diego Branch) was elected Member of the National Academy of Sciences and Fellow of the American Academy of Arts and Sciences, USA.

#### Other awards and distinctions

- **Dr. Emma Fiorini** (Lausanne Branch) received a Marie Heim-Vögtlein Fellowship from the Swiss National Science Foundation (SNSF), Switzerland.
- **Dr. Werner Held** (Lausanne Branch) received the 2006 Leenaards Prize from the Leenaards Foundation in Switzerland together with Dr. Jörg Huelsken from the Swiss Institute for Experimental Cancer Research (ISREC) and Dr. Yves Chalandon from Hôpitaux Universitaires de Genève (HUG).
- **Dr. Frédéric Lévy** (Lausanne Branch) received an award from the Hans Altschuler Stiftung, St. Gallen, Switzerland.
- **Dr. Oliver Bernhard** (Melbourne Branch) received a Peter Doherty Fellowship from the National Health and Medical Research Council, Australia.
- **Dr. Peter Gibbs** (Melbourne Branch) received a Best of Health Celebrating Excellence Award – Research from the Royal Melbourne Hospital, Australia.
- **Dr. Tracy L. Putoczki** (Melbourne Branch) received an International Student Bursary from the University of Canterbury in New Zealand, a Travel Award from the Australian and New Zealand Society of Cell and Development Biology, Australia, and a Travel Award from the Lorne Conference on Protein Structure and Function, Australia.
- **Dr. Andrew Trotter** (Melbourne Branch) was commended on the occasion of the Third Australian Health & Medical Research Congress, Australia for the Best Poster Presentation by a Postdoctoral Fellow.

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- **Dr. Ken Pang** (Melbourne Centre for Clinical Sciences) received the High Commendation, 2006 Premier's Awards for Medical Research in the State of Victoria, Australia.
- **Dr. Anjon Audhya** (San Diego Branch) received a DeLill Nasser Award for Professional Development in Genetics 2006 by the Genetics Society of America, USA.
- **Dr. Julie Canman** (San Diego Branch) was named a Special Fellow of The Leukemia and Lymphoma Society, USA.
- **Dr. Webster Cavenee** (San Diego Branch) was awarded the University of Toronto, Canada, Labatts Lecture, the Sero Symposium International, Boston, USA plenary lecture as well as the plenary lecture at the IV<sup>th</sup> Chinese Oncology Conference, Tianjin, China.
- **Dr. Daniel Foltz** (San Diego Branch) was named a Special Fellow of the Leukemia and Lymphoma Society, USA under the Career Development Program.
- **Dr. German Gomez** (San Diego Branch) was awarded a Young Pathologist Fellowship by the American Society for Investigative Pathology, USA.
- **Dr. Rebecca Green** (San Diego Branch) was awarded a Postdoctoral Fellowship by the American Cancer Society, USA.
- **Dr. Richard Kolodner** (San Diego Branch) was honoured with the Katharine Berkan Judd Award Lectureship from the Memorial Sloan-Kettering Cancer Center in New York, USA. He also received the 2006 Annual Faculty Award for Excellence in Research and an Academic Senate Distinguished Teaching Award, both from the University of California in San Diego (UCSD), USA.
- **Dr. Karen Oegema** (San Diego Branch) was named the 2006 Woman in Cell Biology Junior Awardee by the American Society for Cell Biology, USA.
- **Dr. Sara Olson** (San Diego Branch) was nominated for the Outstanding Dissertation of the Year by the University of California in San Diego, USA.
- **Dr. Beth Weaver** (San Diego Branch) received a Postdoctoral Fellowship from the Philip Morris Foundation, USA. She also received a Brigid G. Leventhal Scholar in Cancer Research Award from the American Association for Cancer Research, USA and a Training Grant from the National Cancer Institute, USA.
- **Dr. Erika Folestad** (Stockholm Branch) was awarded a Rörlig Doktorandtjänst Fellowship by the Karolinksa Institutet, Stockholm, Sweden.
- **Dr. Thomas Perlmann** (Stockholm Branch) received the Umesono Lecturer distinction from the Salk Institute, San Diego, USA.
- **Dr. Johan Ericsson** (Uppsala Branch) received a project grant from the Novo Nordisk Foundation, Sweden.
- **Dr. Carl-Henrik Heldin** (Uppsala Branch) was elected member of the ScanBalt Academy, ScanBalt Region and Foreign Member of the Finnish Scientific Society, Finland. In addition, he delivered the Uppsala University, Sweden, K. J. Öbrink Lecture.
- **Dr. Lukasz Huminiecki** (Uppsala Branch) received a Pfizer Medicinal Discovery Award from Pfizer Sweden.
- **Dr. Serhiy Souchelnyskyi** (Uppsala Branch) received a High Cancer Research Position Award from the Swedish Cancer Society, Sweden.
- **Dr. Shioto Suzuki** (Uppsala Branch) was awarded a Scholarship from the Scandinavia-Japan Sasakawa Foundation, Japan.

Formal academic review to assess the quality and impact of the research performed by Institute staff members is conducted by the Scientific Advisory Committee and the Scientific Directorate. In 2006:-

Following external review, two staff members were promoted to **Member** rank:-

**Dr. Jonathan Cebon**            Melbourne Centre  
**Dr. Andrew Scott**            Melbourne Centre

Following external review, one staff member was promoted to **Associate Member** rank:-

**Dr. Serhiy Souchelnytskyi**    Uppsala Branch

Following external review, five staff members were promoted to **Senior Investigator** rank:-

**Dr. Francis Brasseur**            Brussels Branch  
**Dr. Bernard Lethé**            Brussels Branch  
**Dr. Christophe Lurquin**        Brussels Branch  
**Dr. Fook T. Lee**                Melbourne Centre  
**Dr. Francesca Walker**        Melbourne Branch

Following external review, two staff members were promoted to **Associate Investigator** rank:-

**Dr. Vincent Stroobant**        Brussels Branch  
**Dr. Bruno Catimel**            Melbourne Branch

Following external review, one staff member was promoted to **Assistant Investigator** rank:-

**Dr. Glenn Cartwright**        Melbourne Centre

## Ludwig Institute for Cancer Research

### Proposal to carry forward excess of income over expenditure

The Statutory and Consolidated Financial Statements of the Ludwig Institute for Cancer Research as of December 31, 2006, together with the Reports of the Statutory Auditors and the Group Auditors, KPMG Fides Peat, dated April 5, 2007, are hereby submitted to the General Meeting of Shareholders.

The balance sheet of the Consolidated Financial Statements shows total assets of CHF 1,806,395,428 and the statement of income and expenditure shows an excess of income over expenditure for the fiscal year of CHF 149,981,938.

The balance sheet of the Statutory Financial Statements shows total assets of CHF 62,825,737 and the statement of income and expenditure shows an excess of income over expenditure for the fiscal year of CHF 8,134,804.

In accordance with Article 8 of the Statutes, the Board of Directors proposes that the Shareholders of the Institute authorize the carrying forward of the accumulated available excess of income over expenditure as at December 31, 2006 in the amount of CHF 23,756,044. In this regard, it is noted that according to Article 8 of the Statutes of the Institute, no distribution may be made to the Shareholders.

**Ludwig Institute for Cancer Research**

On behalf of the Board of Directors



Lloyd J. Old  
Chairman

May 7, 2007