A Foundation for Cures

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A pivotal year. Occasionally a single year brings such important changes and immense opportunities that it shifts everything to a new level. For the La Jolla Institute for Allergy & Immunology, 2006 was such a year. Already recognized as a world leader in immunology research, the Institute’s light shined even brighter in 2006 thanks to a new state-of-the-art facility, major findings on several diseases and expanded clinical collaboration with UC San Diego. In short, the developments of 2006 have elevated the Institute to a new, further accelerated era of discovery.
For the La Jolla Institute for Allergy & Immunology (LIAI), 2006 was a stellar year. Our move to a new, state-of-the-art facility came to fruition and has enabled our researchers to significantly expand their disease-fighting research. We are one of only a few non-profit research institutions in the world focused on understanding the immune response to infectious agents and cancers and to advancing progress toward the prevention, treatment and cure of immune system diseases. Immune system disorders affect millions and include allergies, and autoimmune diseases such as type 1 diabetes, rheumatoid arthritis, multiple sclerosis and Crohn’s disease. In its relatively short history, LIAI researchers have achieved an international reputation and our publications are among the most highly cited in the biomedical literature.

Our new research facility is located in UC San Diego’s Science Research Park. It is not only beautiful and well designed, but it provides an “open laboratory” floor plan that encourages LIAI’s highly collaborative research environment. This world-class facility covers 145,000-square feet and is much larger and functional than our previous building. It provides specialized research rooms for all aspects of molecular and cellular biology and features larger lab areas that can support critical
technologies and infrastructure. These technologies include highly sophisticated instrumentation for analysis at the atomic, genetic, protein and cellular levels—all of which are critical to advancing understanding of immune system disease. LIAI’s new Center for Infectious Disease, one of the few such dedicated research centers in California, is also housed in the new building and coalesces the efforts of various researchers focused on understanding dangerous bacterial and viral disease-causing pathogens.

In addition, another key asset of our new building is its location. While retaining our financial independence and identity, LIAI is the first to locate in the University’s new Science Research Park. This location encourages collaboration between private sector organizations and UC San Diego, a great public university. By creating a dynamic environment for exchanging ideas between our preeminent immunology researchers and UC San Diego’s world renowned physicians and faculty, medical research can be pushed forward at an accelerated rate. This will undoubtedly serve as a catalyst for research discoveries and a faster translation of our scientific findings into patient treatments and cures. We look forward with great anticipation to further breakthroughs in our quest for understanding the immune response to infections as well as the causes of debilitating immune system disorders.

Mitchell Kronenber, Ph.D.
President and Scientific Director
What is Immunology?

Friend or Foe?

The body’s immune system can be either one—mounting an attack to save us from dangerous viral infections or paradoxically attacking our own tissues leading to painful autoimmune diseases like type 1 diabetes. Either way, its impact cannot be overstated.

But what are the parts of this system which most of us know relatively little about? The immune system is composed of individual white blood cells that constantly circulate throughout the body. Unlike organs such as the heart or lungs, its work is not confined to a particular location, but rather touches every major part of the body. The immune system, with its estimated 1.5 trillion cells, can be thought of as the body’s defending army.

While this is the helpful side of the
immune system, which scientists seek to enhance through vaccines and cancer therapies, there is also a harmful side of the immune system, which researchers seek to find ways to suppress. Harmful immune responses can cause autoimmune diseases, initiated when the immune system malfunctions and begins to attack normal cells. Autoimmune diseases include a broad array of disorders, ranging from rheumatoid arthritis to multiple sclerosis to Crohn’s disease.

The breadth of the immune system’s reach is not surprising. Medical advancements over the last 20 years have shown that the immune system plays a role in nearly every disease—from infectious diseases to cancer. And, in fact, there is no biomedical discipline that has greater implications for improving human health.
Awards for LIAI Scientists in 2006

Mitchell Kronenberg, Ph.D., LIAI president & scientific director, and Carl Ware, Ph.D., were recipients of prestigious Merit Awards from the National Institute for Allergy & Infectious Diseases (NIAID). Merit Awards provide long-term funding to investigators with impressive records of scientific achievement. The NIAID presented only 15 of the awards nationwide in 2006… Kronenberg also was selected to deliver the Joseph S. Ingraham immunology lecture at the Indiana University School of Medicine. The lecture is presented annually by a prominent immunology researcher… Matthias von Herrath, M.D., received the 2006 Grotzky award from the Juvenile Diabetes Research Foundation for his outstanding contributions to diabetes research.
New Center for Infectious Disease  LIAI launched a major research initiative in 2006 with the creation of its Center for Infectious Disease, one of the few such dedicated research centers in California. The center focuses research efforts on new and re-emerging infectious diseases such as West Nile virus and avian flu, along with potential bioterrorist agents such as smallpox. The center is led by renowned vaccine expert Alessandro Sette, Ph.D., and is home to the world's largest database on how the immune system responds to infectious disease.

Protein Crystallographer Adds New Dimension  LIAI expanded its high-tech research capabilities in 2006, with the addition of faculty member Dirk Zajonc, Ph.D., a protein crystallographer and structural biologist. Zajonc, formerly of the Scripps Research Institute, operates the Institute's new X-ray diffraction machine, a state-of-the-art research tool that allows scientists to see the molecular structure of proteins at an atomic level. LIAI scientists use these high resolution images to study molecular interactions with a clarity and detail that enhances and expedites their research efforts. Parallel to his own research, Zajonc actively collaborates with research groups throughout the Institute.

Research Highlights  LIAI researchers continued to make impressive research advancements in 2006, with about 75 research papers published in various scientific journals. Of these, 20 were published in the most prestigious scientific journals in the world such as *Nature* publications and the *New England Journal of Medicine*. LIAI's significant findings ranged from Matthias von Herrath, M.D.'s work on a combination therapy that may stop type 1 diabetes in the early stages to Alessandro Sette, Ph.D.'s, bioinformatics studies, which showed that computer modeling produces extremely accurate results in predicting immune responses.
Day by day, Matthias von Herrath, M.D., and his lab are edging closer to a goal that has eluded the scientific community for nearly a century. The goal—a cure for type 1 diabetes—took a major step in 2006, with von Herrath’s and LIAI researcher Damien Bresson, Ph.D.’s development of a combination therapy that is showing significant promise against type 1 diabetes, when caught in the early stages. The research, involving a two-pronged therapy given to mice, delivered impressive results, stopping the disease in the majority of animals tested. The therapy is now headed for human clinical trials, planned for 2007 and 2008.

While exciting, it is not the only diabetes approach that interests von Herrath. His lab is a virtual whirlwind of diabetes research activity, with at least eight different projects under way that explore the disease from different angles. Researcher Srinath Sanda, M.D., is studying the “honeymoon” phase of type 1 diabetes in children, a partial remission phase lasting several months to a year. “If we can understand how the body creates this sort of temporary cure, we may be able to design therapies that prolong it, mimic it or even make it permanent,” he explained. Sanda, a medical resident at the UC San Diego Medical Center, is studying blood samples from children at different stages of the disease. Meanwhile, researcher Marianne Martinic, Ph.D., is using imaging equipment, coupled with a pioneering procedure developed by von Herrath, to view beta cell destruction (which causes diabetes) as it happens in the pancreas.

“Type 1 diabetes is a complicated disease,” von Herrath said. “We must approach it aggressively if we are to successfully treat and even one day cure this illness.”
Matthias von Herrath, M.D., (left) and his lab are working on a combination therapy that is showing great promise as a potential cure for early stage type 1 diabetes. Here, von Herrath and Christophe Filippi, Ph.D., examine cells from a recent experiment.
“Fascination” is what drives Hilde Cheroutre, Ph.D., in her quest to uncover the biological mysteries of the small and large intestines, and which has led her to the international forefront of inflammatory bowel disease (IBD) and Celiac disease (CD) research. “I like to discover,” she explains. “I like to see how the body works and to understand why things happen.” IBD and CD are a group of immune disorders, including Crohn’s disease and ulcerative colitis, that cause the intestines to become inflamed and swollen. People suffering from those diseases experience symptoms ranging from abdominal pain to intestinal bleeding, and sometimes life-threatening complications. Cheroutre, a world authority on the immunology of the intestines, focuses on T lymphocytes and how the immune system uses T cells to provide protection at the body’s mucosal surfaces—including skin, lungs, mouth and the largest surface of all, the intestines. Cheroutre’s findings have significantly advanced scientific understanding of how and why the T cells sometimes fail and allow disease-causing agents to invade the body, or why the T cells sometimes respond in an uncontrolled fashion—the suspected cause of immune disorders of the intestine. Her most recent finding on intraepithelial lymphocyte (IEL) precursor cells in the thymus sheds new light on specialized T cells in the intestine with regulatory powers. Cheroutre believes that these specialized T cells may play an important role in protecting the body from IBD.
Exploring Immune Mysteries

Yun-Cai Liu, Ph.D., (above) studies the immune system “off switch” as a possible means to control autoimmune disease.

Understanding how to turn off an immune system attack might seem an unusual goal. After all, most immune onslaughts are aimed at viruses, bacteria or other biological invaders to the body. But what if the immune system’s attack is aimed at healthy cells, such as in autoimmune disease? Then the immune ‘off switch’ becomes very important. LIAI’s Yun-Cai Liu, Ph.D., has made significant strides in this area by studying molecules, called ubiquitin ligases. Of particular note, his work has pinpointed the Cbl-b ligase molecule as playing a critical role in preventing the development of rheumatoid arthritis and Crohn’s disease. Indeed, the No. 1 treatment currently for these two disorders is drugs that block TNF. Ware’s trailblazing work in the discovery of additional TNF family members, and his illumination of their modes of action, may also have application for fighting infectious diseases and cancer.

Ammon Altman, Ph.D., (above) focuses on the activation of T cells and how irregularities in this process can lead to immunological disease.

LIAI scientist Carl Ware, Ph.D. is also working to solve the puzzle of autoimmune disease and is internationally recognized for his work on tumor necrosis factor (TNF). TNF is a family of proteins key to communication between immune cells, and members of this family have been implicated in several autoimmune diseases, including rheumatoid arthritis and Crohn’s disease. Indeed, the No. 1 treatment currently for these two disorders is drugs that block TNF. Ware’s trailblazing work in the discovery of additional TNF family members, and his illumination of their modes of action, may also have application for fighting infectious diseases and cancer.

Altman’s studies are revealing mechanisms that may hold the key to controlling the onset of autoimmune disease. Most recently, Altman is focusing on the immunological synapse, which is the specialized intracellular junction that allows the T cell to carry out immune responses. His pioneering work provides an important window into the molecular interplay between cells that can lead to beneficial immune responses or harmful ones, such as those leading to autoimmunity.

Ammon Altman, Ph.D., a Leukemia Society of America Research Scholar, has notably enhanced scientific knowledge on the activation of T cells, which are the immune system’s disease-fighting warriors. Since aberrations in T cell activation can lead to immunological diseases, Altman’s studies are revealing mechanisms that may hold the key to controlling the onset of autoimmune disease. Most recently, Altman is focusing on the immunological synapse, which is the specialized intracellular junction that allows the T cell to carry out immune responses. His pioneering work provides an important window into the molecular interplay between cells that can lead to beneficial immune responses or harmful ones, such as those leading to autoimmunity.
Sujan Shresta, Ph.D., focuses her research on dengue virus and West Nile virus, two serious disorders for which treatments or vaccines currently do not exist.
The disease which occupies the heart and mind of Sujan Shresta, Ph.D., kills thousands in Southeast Asia and Latin America each year. And, like several other dangerous viruses in the world today, it is moving uncomfortably close to the United States as well. Dengue virus causes dengue fever and dengue hemorrhagic fever/dengue shock syndrome, the most significant mosquito-borne viral diseases in the world today in terms of illness, death and economic cost. Currently, 250,000 cases of the severest form are reported each year, causing 24,000 deaths worldwide. Continued global expansion is likely, and the U.S. finds itself at risk since mosquitoes capable of transmitting the virus have been found here. “In this age of globalization, infectious diseases have no geographic boundaries,” Shresta said. “All it takes is one traveler to be infected to bring back the virus to this country.” Shresta knows the suffering dengue virus can cause, noting it is a “huge problem” in India, a neighboring country to her homeland of Nepal. In 2004, dengue was introduced in Nepal, while a related disease, Japanese encephalitis, already causes many deaths there. It is, in fact, her desire to contribute back to her country that fuels her intense efforts. Her work also has broader implications, particularly for West Nile virus, which belongs to the same virus family. “Their genes are very similar, so my research advances knowledge of both diseases,” she said. West Nile first appeared in this country in 1999 and caused 161 U.S. deaths in 2006. Shresta hopes her work will one day lead to treatments or vaccines, neither of which currently exist for these viral diseases.

FACT

West Nile virus is a mosquito-borne illness first reported in the U.S. in 1999. While most people experience no symptoms, one in 150 people infected with the virus will develop severe illness. The best protection is to prevent mosquito bites.
Sometimes taking the road less traveled brings its voyagers to unexpected—and even groundbreaking—new territory. Such was the case for Mitchell Kronenberg, Ph.D., LIAI president and scientific director, who began researching Natural Killer T cells (NKT cells) about 15 years ago, at a time when the white blood cells held little or no interest for most scientists. “Sometimes in science there are so many people trying to answer the same question that it’s good to stray off in another direction. You may find something really interesting,” said Kronenberg, whose work is now drawing international interest due to his novel finding of an apparent connection between NKT cells and Lyme disease, a tick-borne disorder that leads to arthritis and inflammation in other organs. In Kronenberg’s 2006 study, he found that a bacteria transmitted by the tick bite, and which causes Lyme disease, stimulates an immune attack by the NKT cells—a major discovery considering this is the first disease-causing microorganism (and only the third substance on earth) known to naturally activate NKT cells. Remarkably, two of those substances were identified by Kronenberg, the latest being the Lyme disease bacteria, Borrelia burgdorferi, and the glycolipid NKT cell stimulant it contains. The scientific community is now hopeful that the glycolipid can be used to develop a vaccine against Lyme disease. Work is proceeding, with Kronenberg’s team now analyzing blood samples from Lyme disease patients to better understand the role of NKT cells in the disease.
The worldwide battle against influenza—including bird flu—received a major boost in 2006 thanks to an LIAI research team led by Alessandro Sette, Ph.D., director of LIAI’s Center for Infectious Disease. LIAI completed the world’s most comprehensive, computer-based analysis to date on the immune response to influenza virus. The first of its kind study found hundreds of similar epitopes among the different virus strains. Epitopes are the sites on a virus that trigger an immune response and the information could be used to generate new vaccines that target these epitopes.

The analysis drew upon a much larger effort called the Immune Epitope Database (IEDB), which began in 2004 after the National Institutes of Health (NIH) awarded LIAI a $25 million contract to create the world’s largest single repository of immune epitopes from critical disease-causing microbes. LIAI was chosen to develop the database—funded under the federal biodefense program—in a competitive application process, with LIAI’s international expertise in vaccine development figuring prominently, said Stephen Wilson, Ph.D., LIAI chief technology officer and database project director.

Sette noted that “we’re pleased that the NIH entrusted the Institute not only with creating and hosting this important database, but also with the work of analyzing the influenza data.” In addition to developing worldwide resources, LIAI scientists continue to produce their own noteworthy influenza findings. These include Sette’s work to develop a “universal” flu vaccine that would protect against numerous strains along with Hilde Cheroutre’s idea for a potential treatment for avian flu that is now in pre-clinical trials.

LIAI’s Role in Biodefense

LIAI researcher Shane Crotty, Ph.D., may not think of himself as a defender against bioterrorism. But when it comes to smallpox, the antibody that he identified could be the nation’s first line of defense in protecting against a terrorist smallpox outbreak.

Crotty’s work is one of the several LIAI projects under way that play a key role in the nation’s biodefense efforts. Other projects include the Institute’s development of the world’s largest database on infectious disease (see influenza story, this page), along with research into the arena viruses, SARS and other infectious agents. In 2005, while studying long term immunological memory to the smallpox vaccine, Crotty identified the anti-H3 antibody in humans that quickly fights the smallpox virus. This is a vital finding since the younger portion of the U.S. population is not vaccinated (routine U.S. smallpox immunization ended in 1972). Crotty is currently analyzing how to mass produce the antibody so it may be stockpiled nationally, along with the smallpox vaccine.

CMV

Cytomegalovirus (CMV) can cause serious illness in those without a fully functioning immune system, including newborns and immune suppressed individuals. Most people, however, have contracted CMV and will have it for life without symptoms. Often a childhood infection, CMV is the sort of virus that quietly persists, but in a dormant state. For Chris Benedict, Ph.D., this unusual balance between the immune system and CMV is intriguing and fuels his studies. “What is this virus doing to the immune system that allows it to stick around and what is the immune system doing to the virus that keeps it down, but doesn’t get rid of it completely?” Understanding this co-existence, Benedict believes, may hold the key to keeping other, more dangerous viruses, like hepatitis C and HIV, at bay.
Although there are many kinds of cancer, they all begin because of the uncontrolled growth of abnormal cells. But what if medical science could boost the power of T cells, the body’s disease-fighting warriors, increasing their numbers so they could attack and kill all of the cancerous cells? Such is the premise underlying one aspect of the work of Michael Croft, Ph.D., who describes cancer as “a battle between different cell populations.” Croft’s studies focus on helping the primary soldier in that battle, the T cells, to survive and grow in numbers and strength. In particular, he researches Aurora B and Survivin, two proteins that his group recently found play an important role in T cell division. “Aurora B and Survivin help T cells to efficiently go through the cell cycle and divide,” he said, noting cells increase in number by dividing. In addition to seeking ways to enhance cell division, Croft is working on aiding T cell survival through the Bcl-xL protein. “We’ve already published that Bcl-xL works quite well in this process to aid T cells to persist in the tumor environment,” he said. His next step will be combining Bcl-xL with Aurora B or Survivin, in an effort to produce even better cancer-fighting T cells. “Cancer cells divide and divide to the point that there are so many, it’s difficult to kill them all,” he said. “That’s why the more T cells you have, the better. It gives the body a fighting chance.”
When Stephen Schoenberger, Ph.D., studies lymphomas and leukemias, he doesn’t see an insurmountable scientific challenge, he sees hope. “I genuinely believe these are cancers we can do something about,” said Schoenberger, adding that he was drawn to the research because he could see “real possibilities” for solving the biological paradox of blood cancers. Lymphoma and leukemias result from the unrestrained growth of one type of B cell or T cell that usually defends the body against disease, but which can also mutate into tumor cells. “Lymphoma and leukemias are perplexing because these tumors are found within the very organs (spleen and lymph nodes) in which immune responses are initiated. And yet they evoke no apparent immune response,” Schoenberger said. He believes this lack of response is caused by a special mechanism that enables the cancerous B and T cells to induce tolerance in killer T cells - effectively stopping the killer cells from destroying them. Schoenberger is investigating possible ways of inhibiting the tolerance mechanism, so that cancerous B or T cells can be destroyed. LIAI researcher Don Newmeyer, Ph.D., comes at cancer from a different vantage point, seeking to understand the process of how and why cells die. Cancer occurs, Newmeyer explained, through the uncontrolled growth of genetically altered cells that under normal conditions would die off. Newmeyer’s research looks at how cell death might be controlled. “By understanding how normal cells die, we may be able to manipulate the process to cause cancer cells to die selectively, leaving normal cells unaffected,” he said. Newmeyer’s work has focused on the role of the mitochondria, the cell’s energy factory, and how it initiates cell death through the release of certain proteins that trigger an inbuilt program of cellular suicide.

**FACT**

The American Cancer Society says people can lower their cancer risk with timely screening tests, good food choices, an active lifestyle and by quitting smoking.
Toshiaki Kawakami, M.D., Ph.D., speaks with obvious enthusiasm of his research into the molecular signaling system that leads to allergies, which are inappropriate or overactive immune responses. “It is finding the unexpected, something unusual that energizes us,” said Kawakami, whose findings have contributed significantly to the field of allergy research over the last 17 years. Kawakami’s laboratory looks at mast cells, which are well known to be the culprit in inducing allergic reactions such as itching, wheezing, and sneezing. Kawakami notes that allergic symptoms can occur if the mast cells are activated, a complex cellular process triggered by exposure to allergens. “By understanding the mast cell activation process, we hope it will one day be possible to better treat or prevent allergic diseases.” Kawakami has determined that the IgE protein is central to the activation process. “What we’ve been studying is how IgE binds to the mast cells, which activates them to release histamine and other compounds, leading to allergy symptoms,” he said. While many therapies already exist which inhibit the action of histamines, Kawakami believes a better approach would be to interfere with the initial activation of the mast cell, which is where he focuses his studies. “Ten to 20 percent of the population of industrialized countries suffers from some form of allergies,” he said. “There is a huge need to understand this disease and to find therapeutic interventions.”
It might come as a surprise to many that asthma results from the good intentions of the body, gone bad. “It’s a situation where the T cells (the body’s disease-fighting cells) are responding to something where you really don’t want a response,” said Michael Croft, Ph.D.

While that information may be of little comfort to the 20 million U.S. asthma sufferers, it is an important piece of the cellular puzzle that researchers hope to solve to one day control this disease. Institute researchers, including Croft and Mitchell Kronenberg, Ph.D., LIAI’s president and scientific director, are studying ways to stop the overzealous response from the immune system’s T cells, which occurs due to contact with an external allergen such as those from pollen.

Croft, co-recipient of a major 2006 asthma grant sponsored by the National Institutes of Health, researches OX40, a protein essential to communication between immune cells. In a significant finding, Croft found that an antibody that blocked the action of OX40 in mice, halted the T cell response to the asthma allergen and dramatically suppressed inflammation in the lungs. Croft said this study dealt with asthma onset, while his current focus is on chronic asthma.

Meanwhile, Kronenberg has drawn international interest due to his asthma research involving Natural Killer T Cells (NKT cells). Kronenberg was co-author on a major study published in the *New England Journal of Medicine* in 2006, which found a higher concentration of NKT cells in the lungs of asthma patients versus a healthy control group. The finding surprised the medical community, which had long believed other types of T cells were the primary offender in asthma. While most T cells respond to proteins, the NKT cells are triggered by lipids, which are related to fats found in the body and in some plants and food. The finding may mean the researchers have found a new trigger for asthma. The study drew international interest and was covered by the *Wall Street Journal* and other major newspapers. Researchers from Harvard, Stanford, Children’s Hospital in Boston and the Karolinska Institute in Stockholm also participated in the study.

“Our next steps will be to find ways to inhibit the activity of the NKT cells in the lungs as a possible means of controlling asthma,” Kronenberg said.
La Jolla Institute for Allergy & Immunology continues to operate in a strong financial position, with total revenues of $28.8 million for fiscal year 2006. Our renowned scientists continue to be highly successful in obtaining competitive, peer-reviewed research funding from the National Institutes of Health. As shown on the accompanying bar graphs, LIAI’s federal funding, total revenues and net assets have increased steadily in recent years.

Since our inception in 1988, the Institute’s industry partner, Gemini Science, has provided us with a critical source of unrestricted research funding while facilitating the translation of our discoveries into potential treatments for human disease. Sponsored research funding from Gemini Science continues to be our second largest source of revenue.

LIAI’s new state-of-the-art research facility, located in the University of California, San Diego’s Science Research Park, provides a long-term home and an optimal environment for our scientists to pursue medical research breakthroughs. We are currently working to meet cost requirements associated with our recent relocation and the expansion. These include costs for building space improvements, recruiting prominent scientists, acquiring new technologies and instrumentation, and providing start-up funds for new research programs.

To help meet these requirements—and in light of expected declines in NIH research funding due to competing federal priorities—we are encouraging new donors to help in supporting the Institute’s research mission. In doing so, we invite you to join us in our intensive search for understanding, treatments and cures of a broad range of human diseases in which the immune system plays a role.

Charles A. Carpowich, Jr., CPA
Vice President and Chief Operating Officer
## BALANCE SHEET

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## STATEMENT OF ACTIVITIES

### Revenues:
- Federal grants and contracts: $21,010,000
- Private grants and contracts: $6,830,000
- Contributions: $439,000
- Investment return and other: $561,000
- **Total revenue**: $28,840,000

### Expenses:
- Research: $23,890,000
- General and administrative: $2,927,000
- Fundraising: $53,000
- **Total expenses**: $26,870,000
- **Change in net assets**: $1,970,000

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*2006 Financial Data summarized from LIAI’s December 31, 2006 audited financial statements. To receive a copy of LIAI’s audited financial statements, contact Skip Carpowich at 858-752-6510 or e-mail skip@liai.org.*
For example: In 2006, the Center for Infectious Disease was established to focus research efforts on the fight against new and re-emerging infectious diseases such as West Nile virus, avian flu and SARS, along with potential bioterrorist agents such as smallpox and the arena viruses. There is a problem in infectious disease research of lag time between diseases being recognized, proposals written, funding decisions, and taking action. The Center allows specialists in the field to continually monitor new diseases, and to quickly rally and react to potential threats in real time. Key to acting quickly to a potential infectious disease threat is access to the knowledge and discoveries that the scientific community has made worldwide. The La Jolla Institute for Allergy & Immunology is home to the Immune Epitope Database and Analysis Resource (IEDB). Relying on bioinformatics, the database is being developed as the world’s largest repository of information on immune responses to infectious agents. The goal of the compilation of this knowledge is to facilitate faster development of new vaccines and therapeutics.
**Gifts from those who believe in LIAI’s mission**—fighting human disease through a better understanding of the immune system—have a clear impact on our research efforts. Such generosity keeps us on the cutting edge of biomedical research by providing the flexibility to pursue our most exciting ideas and projects.

The power of philanthropy has been significantly leveraged at LIAI by the success of our research faculty’s federal support, such as the funding for the IEDB. However, the downward trend in government funding over the past few years means that gifts in support of our research are more critical than ever before.

**Gifts to LIAI help us to:**
- Pursue promising, innovative research paths that are not covered by traditional funding.
- Recruit world-renowned faculty and provide them with funding to jump-start their laboratories.
- Acquire sophisticated new equipment to give Institute researchers the tools they need for breakthroughs.
- Educate future generations of leading scientists through the Institute’s superb graduate and postdoctoral training programs.

**Help us help others—become a part of our mission.** We encourage those who believe in our mission to invest in the Institute. Your gifts help fuel our biomedical research on the immune system. In fact, there is probably no biomedical discipline that has greater implications for improving human health than immunology. **Thank you.**


Cheroutre, H. In IBD eight can come before four. Gastroenterology 131(2):667-70.


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Dr. Howard Grey was the second president and scientific director of La Jolla Institute for Allergy & Immunology (LIAI), serving from 1996 until his retirement from the position in 2003. During his eight-year tenure, the Institute more than doubled in size, achieved significant scientific advances and further established itself as a leader in immunologic research. Dr. Grey is a member of the National Academy of Sciences, and has a long career marked by impressive scientific discovery and achievement. He remains active in research and is currently a member of LIAI’s faculty in the Division of Vaccine Discovery.

“The Institute owes a great deal to the strong leadership, vision and scientific excellence of Howard Grey,” said Mitchell Kronenberg, Ph.D., LIAI’s president & scientific director, who succeeded Dr. Grey in 2003. “Dr. Grey played a key role in shaping the Institute into the fine research organization it is today. We are grateful for his many contributions and continue to benefit from his research knowledge and wisdom.”

The Institute wishes to express its deep appreciation and gratitude for Dr. Grey’s longstanding dedication and enduring contributions to LIAI. It is with great pride that we announce that Dr. Howard Grey has been appointed as President Emeritus of the Institute.