

Spring
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UNIVERSITY OF MINNESOTA

Frontiers

MAGAZINE OF THE COLLEGE OF BIOLOGICAL SCIENCES



Special Issue

A new era for growth in biotechnology

*The U celebrates the “snowbreaking” for the
Microbial and Plant Genomics Building and opens
Biodale research support facilities.*

Inside

**U faculty and staff
share thoughts on
new opportunities
in biology**

**Industry colleagues
discuss Minnesota’s
future in
biotechnology**

Minnesota's Future in Biotechnology

John Nolner



Dean Robert Elde

The promise of biotechnology is making headlines around the world. Here in Minnesota, the College of Biological Sciences (CBS) is building on that promise—literally. On February 7, the University of Minnesota celebrated the groundbreaking for the Microbial and Plant Genomics Building. Part of President Yudof's initiative in molecular and cellular biology, this is the first of the facilities that will make up the newly designated Biotechnology Quadrant on the University's St. Paul campus.

Throughout Minnesota, students want to study biology. University of Minnesota admission statistics show a strong demand for curricula related to biological sciences. Growing numbers of high school students are thinking about biology in some form or another—as a doctor, CEO of a biotechnology firm, or perhaps research scientist. The top three information requests received by the University are for pre-medicine, business, and biology, making up over 25 percent of all requests.

“The University is committed to providing outstanding opportunities for students in the state, across the nation, and worldwide,” says Bob Elde, Dean of CBS. “Educating students is our primary business.”

But CBS does not exist in a vacuum. To satisfy student demand, CBS and the College of Agricultural, Food, and Environmental Sciences (COAFES) are collaborating with industry colleagues. Thanks to a \$10 million gift from Cargill and \$10 million in matching funds from the Minnesota Legislature, the University can build the Microbial and Plant Genomics Building.

“We acknowledge the mutual benefits of industry partnerships,” says Elde. “Students leave the University with the knowledge and training necessary for success, and employers gain knowledgeable new employees with the tools to change the world. As the University partners with the private sector, we foster growth and change for the well-being of the state and beyond.”

Partnerships also support the needs of the faculty. Because the University is actively pursuing the molecular and cellular biology

initiative, it has attracted outstanding new faculty members from around the world.

“Our new faculty members are catalysts for change, helping the University become a net importer of knowledge. Remarkable faculty members attract more outstanding faculty as well as bright students. They all come together to form a dynamic community,” says Elde.

Students, faculty, and industry partners all need access to the right resources. That's where Biodale fits into the picture. Biodale is another partnership—a newly formed consortium of research services that supports genomics, proteomics, bioinformatics, and more.

“Biodale is like the Kinko's® of biotechnology support,” explains Elde. “It has the latest technology, well-maintained facilities, and friendly people who can help you make optimal use of these resources. There is no other place in the state where scientific and industrial collaborations can take place at such a crossroads of talents, ideas, and common interests.”

Biodale's collection of cutting-edge biological research support services is the first physical part of the molecular and cellular biology initiative to be completed. Soon to follow will be the Molecular and Cellular Biology Building nearing completion on the Minneapolis campus and the Microbial and Plant Genomics Building, for which ground was just broken.

As the headlines roll past, remember that the College of Biological Sciences is one of the newsmakers in biotechnology.

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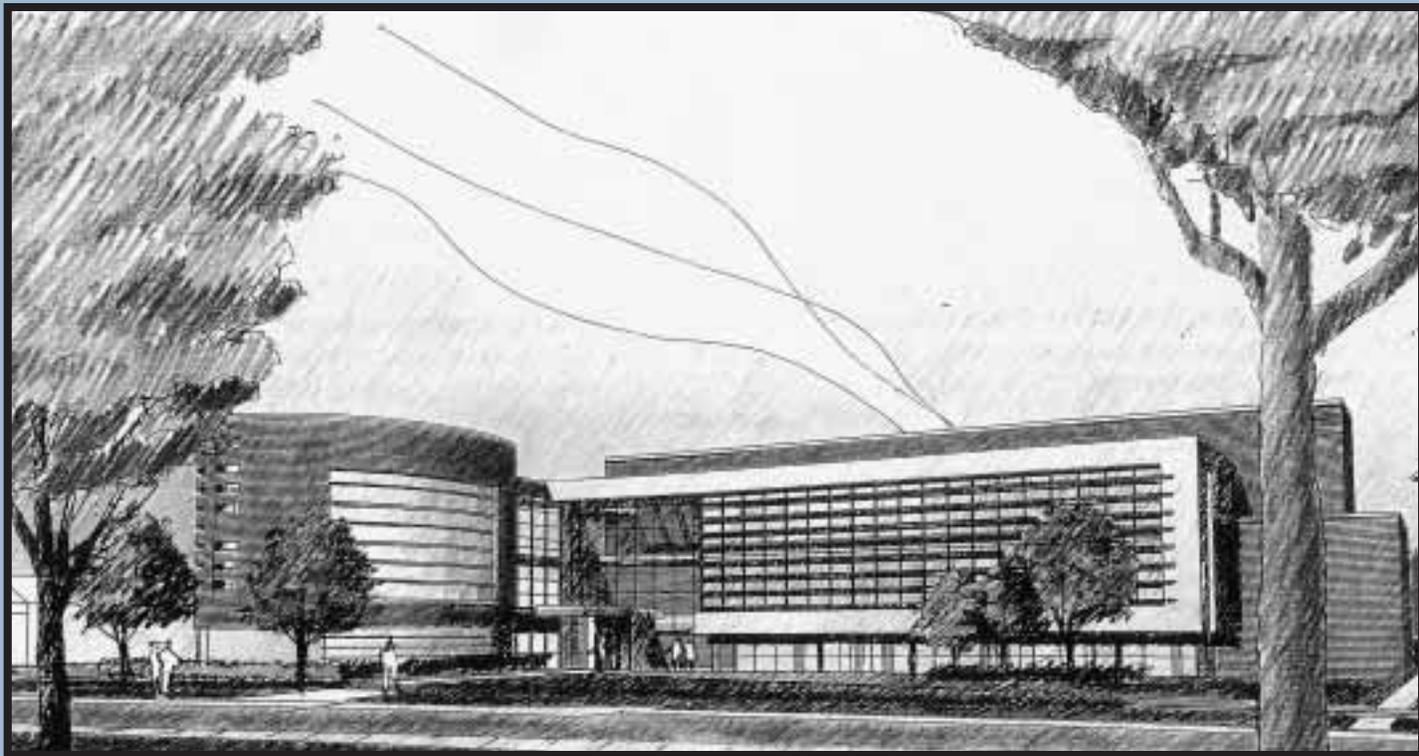
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The University's mission, carried out on multiple campuses and throughout the state, is threefold: research and discovery, teaching and learning, and outreach and public service.

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Breaking Ground

for the Microbial and Plant Genomics



“I think this building project tells us a lot about what the University is about. It’s about research, it’s about innovation, it’s about a better quality of life. It’s about the environment, it’s about human health, and it’s about food productivity. It’s a whole world out there. It involves an inter-disciplinary cooperation. We’re hoping for innovation and synergy here in a beautiful physical space, and we think that in terms of our mission, the Microbial and Plant Genomics Building is extremely important and an example of a collaboration that advances the state.” –President Mark Yudof

“Our gift tells you how important we think this new field of study (genomics) is going to be to everybody’s future. It’s going to take all of us debating and discussing in the political and public arena. ...The gift also underscores our commitment to the University of Minnesota. We can’t think of a better way for the U of M to start off its next 150 years of existence, and we hope that this public and private partnership is going to move the state forward in the next millennium. We think it will.” –Warren Staley, President and CEO of Cargill



Kristen Murphy

The crowd gathers to witness the snowbreaking for the Microbial and Plant Genomics Building.

Building

Snow fell softly yet persistently on February 7. Despite the winter weather, faculty, staff, and friends of the University of Minnesota came to celebrate the groundbreaking of the Microbial and Plant Genomics Building on Gortner Avenue on the St. Paul campus. President Mark Yudof, Patricia Spence, Chair of the Board of Regents, Robert Elde, Dean of CBS, Charles Muscoplat, Dean of COAFES, and Warren Staley, CEO of Cargill raised their snow shovels and expressed their thanks to the gift from Cargill and the matching funds from the Minnesota Legislature that made the new building possible.



John Nollner

Warren Staley, CEO of Cargill and President Mark Yudof celebrate the special partnership.

Did You Know?

The Microbial and Plant Genomics Building is one of the first buildings in the United States designed and designed for genomics. This is also the first of the buildings that will make up the "Biotechnology Quadrant" on the St. Paul campus.

About the Microbial and Plant Genomics Building

Project Overview

Courtesy of Architectural Alliance

The Microbial and Plant Genomics Building, to be constructed on the St. Paul campus of the University of Minnesota, is a collaboration of the following University entities:

- College of Biological Sciences (CBS)
- College of Agricultural, Food, and Environmental Sciences (COAFES)
- Institute of Technology (IT)
- Academic Health Center (AHC)

The major program areas include:

- Genomic research laboratories
- Bioinformatic research laboratories
- Principal investigator and scholar offices
- Administrative area
- Microbial growth area
- Plant growth area
- Computer visualization spaces
- High-throughput screening center

The total building area is 64,000 square feet with an assignable program area of approximately 43,000 square feet. Total project cost is anticipated at \$20,000,000. Expected occupancy is in the fall of 2002.

Design Principles

Courtesy of Architectural Alliance

Responding to input from University planners and building users, the design of the Microbial and Plant Genomics Building is informed by four key design principles: Connectedness, Openness, Interaction, and Flexibility.

Openness

Research in Microbial and Plant Genomics, as part of a larger dialogue within our society about genetic research and its applications, is an evolving field of study. The building should foster open discussion within the scientific community and encourage public outreach and connectedness within the community and the University at large. The predominance of glass and transparency on the public side of the building conveys this sense of openness. Seminar space on the ground floor near the entrance encourages seminars and public discussion, connecting students and faculty to the events and activities of the Center for Microbial and Plant Genomics.

Welcome to Biodale!

AFTER THE GROUNDBREAKING (or snowbreaking) for the Microbial and Plant Genomics Building, visitors warmed up with a tour of Biodale. Biodale is a consortium of University of Minnesota service centers offering state-of-the-art instrumentation and user-friendly, walk-in service and training. This expert advice and equipment for non-specialist users is available to researchers at the University and beyond.

Biodale is located in the lower levels of Snyder Hall and the Gortner Laboratory, 1475–1479 Gortner Avenue, on the University's St. Paul campus.

Biodale is made up of six service centers:

- The Advanced Genetic Analysis Center
- Mass Spectrometry Consortium for the Life Sciences
- Imaging Center
- Biotechnology Resource Center – Protein Expression and Purification Laboratory
- Biotechnology Resource Center – Fermentation Process Development and Scale-up Laboratory
- Bioinformatics and Research Computing Facility
- High-Throughput Screening and Analysis Facility

Biodale benefits:

- Well-maintained facilities
- Expert staff to help guide or teach visitors who use the equipment
- Access to cutting-edge technology

For more information, visit Biodale on the web at www.cbs.umn.edu/biodale.

“Welcome to Biodale, so called because it is one-stop shopping for cutting-edge biological research support services—similar to what you’ve come to expect from the service you receive at Kinko’s®. In contrast to Kinko’s 18 sites in the Twin Cities, Biodale is one of a kind in the state, and perhaps in the nation.”

—Bob Elde, Dean of the College of Biological Sciences



Kevin Silverstein, a Ph.D. Research Associate from the Center for Computational Genomics and Bioinformatics, teaches a visitor about the “visual information array,” a multi headed workstation for exploring graphically based genomics information.

John Noltner

“Researchers can use workstations in the Bioinformatics and Research Computing facility to determine if what they have just sequenced is related to anything discovered earlier—determining what family it’s part of, predicting its real-world structure, and predicting what other proteins it might interact with. The researchers can then take their samples to the Mass Spectrometry Consortium for the Life Sciences, right down the hall, to identify and sequence proteins from complex mixtures, putting Biodale’s bioinformatics workstation predictions to the test.”

—Charles Muscoplat, Dean of the College of Agricultural, Food, and Environmental Sciences



John Noltnner

Regent Spence, President Yudof, Dean Elde, and Dean Muscoplat officially open Biodale

“Up until now, Falcon Heights has been almost perfect, but one thing we didn’t have was a Dale. Now we are going to have a Dale, and not only that, but I would pit the genes that come out of our Dale against the jeans that come out of any other Dale in this area! I want to wish the University my heartiest congratulations on this wonderful project. It is a real honor to have it in the city of Falcon Heights.”

–Sue Gehrz, Mayor of Falcon Heights

“Biodale is an integrated, coordinated way of providing access to research capabilities. The Academic Health Center, Medical School, and CBS all need state-of-the-art capabilities. The faculty need support, but more importantly, students in all these areas need to learn about and access this technology. Biodale’s Advanced Genetic Analysis Center (AGAC) is going to be a major center for high throughput sequencing, and researchers in the microbiology department are already taking advantage of AGAC equipment and services.”

–Ashley Haase, Head of the Department of Microbiology and Regents’ Professor



Kristen Murphy

Research Associate LeeAnn Higgins (center) and visitors analyze data with Tom Krick (right), director of the Mass Spectrometry Consortium.

Toward Biological Literacy

“WORKING WITH DIFFERENT PEOPLE who possess a variety of talents is one of the delights of science today,” says Kate VandenBosch, Professor and Head of the Plant Biology Department. “It’s hard for an individual to cover the breadth of research techniques, but you can accomplish a lot more by interacting with other people.”

VandenBosch is new to the University of Minnesota, but she established her collaborations with other faculty here before her arrival. Her research at Texas A&M University connected her to Steve Gantt in Plant Biology, Nevin Young and Debby Samac in Plant Pathology, Carroll Vance in Agronomy and Plant Genetics, and Ernie Retzel from the Academic Health Center’s Research Computing facility. As her research expanded into genomics—studying *Medicago truncatula*, a close relative to alfalfa, as an example of the large and important legume family—moving into CBS was an easy decision to make.

“This is an exciting time for University of Minnesota students to explore new ideas that could lead to career paths in emerging areas.”

When Professor VandenBosch talks about the changes going on in biology at the University, her enthusiasm is obvious.

“As a department head, my mandate is to hire new faculty, and we’re pleased with the quality of applicants,” says VandenBosch. “We’ve achieved a kind of momentum in developing strengths for the department and the college. Because I have the resources in faculty and equipment to develop the cutting edge of my science, I really feel that we are making a lot of progress at the University. It’s really exciting to see our role as leaders in biology come to fruition.”

Before VandenBosch decided to come to the University, she took a tour of what was then a construction zone of the Biodale facilities.

“I was astounded when I saw the new Imaging Center. Seeing the organization for the first time, it was as if I had input in its development all along. The Imaging Center, the Advanced Genetic Analysis Center, and the Bioinformatics and Research Computing Facility will support my research. Having all these resources together is so cost-effective and convenient.”

As the Biodale facilities and the Microbial and Plant Genomics Building help to give CBS more visibility, the wider community can see the importance of biology, allowing research and scholarship to grow even further. New developments bring tangible results for faculty, staff, and students interested in research.

“This is a great opportunity for students,” explains VandenBosch. “Undergrads here are exposed to cutting edge tools and concepts, along with non-traditional curricula that we are developing through our cross-disciplinary interaction. This is an exciting time for University of Minnesota students to explore new ideas that could lead to career paths in emerging areas.”

And just what sorts of new ideas will undergraduate and graduate students explore



John Nother

Kate VandenBosch

in CBS? VandenBosch sees the challenge of understanding the organization and function of DNA sequence data—information that could help us understand what certain proteins do, where they are found, and what happens if they mutate. Genomics tools will help in the study of genetic variability—evolution and ecology—beyond development, function, and physiology. The scientific process is changing as fields cross boundaries, allowing researchers to take new approaches to answer old questions.

“Biological literacy is a coming trend,” says VandenBosch. “Because of the controversy over genetically modified organisms (GMOs), the public has been learning more. Increased discussion has brought more balance, but we’ll have more decisions about risks and benefits to make in the future.”



Ashley Haase

Support for Hypothesis-Generating Research

“I see microbes as an important part of our future,” says Ashley Haase, Head of the Department of Microbiology and Regents’ Professor. “Genomics and post-genomics shows us biology on an industrial scale. As we increase our ability to acquire massive amounts of data, the ability to understand this data will direct the future of biology, or at least be a starting point. And this is a shift in research. Research has been hypothesis-driven, but the new research will be hypothesis-generating.”

Growing Opportunity in Minnesota



John Noltner

Bonnie Baskin

“MINNESOTANS LIKE MINNESOTA,” says Bonnie Baskin, founder, President, and CEO of ViroMed Laboratories in Minneapolis. “It’s a shame and a crime to let the bright people of Minnesota go to the coasts because that’s where the biotechnology jobs are. We need to provide the opportunity to stay here.”

Research universities have the unique ability to create a biotechnology center for a state or region. Boston, San Diego, and North Carolina are centers for biotechnology today. Universities in those areas have encouraged scientists to make commercial opportunities and partner with the investment community. Minnesota is just beginning this cycle of growth. Ideally, as Minnesota biotechnology companies grow, they will look back to universities and partner with the institutions that brought them to life.

“Cutting-edge research support services require an enormous capital investment, especially for entrepreneurial companies,” says Baskin. “And the funding required to make these resources available would be problematic for start-up companies. Biodale is a tremendous resource for the University

community and companies like ViroMed. It’s a required piece in the bigger picture of growing Minnesota’s biotech community.”

“The University’s commitment to CBS is an exciting situation,” comments Baskin. “As we look to recruit people to grow our business in Minnesota, we need a critical mass of people from which to choose. Minnesotans need the opportunity to learn biotechnology and use their skills here. Biodale and other initiatives will provide resources and opportunities to grow a biotech industry and attract a high caliber of companies.”

In order for Minnesota to become a biotechnology center, Baskin says, “We are going to need input and partnership of a variety of sectors. The University needs to be committed. The investment community needs to look seriously at start-up companies. And it would be valuable to our economy to have government and Legislature supporting biotechnology.”

Baskin sees two major trends in the way biotechnology will profoundly affect life in the future—through advanced applications in agriculture and medicine.

“Biology will change the therapeutics of the future,” says Baskin. “We won’t just treat the symptoms; we’ll treat the cause of the illness. We will have the capability to diagnose illnesses in specific and individually tailored ways. People will look back at the way we treat cancer now—with cell-killing chemicals—and they will think of our medicine the way we today think of medicine in the Middle Ages.”

“On the agricultural side, we will have a safe, nutritional food supply for the world. We must put the controls and safety aspects in place,” cautions Baskin, “but the potential is huge.”

The Roots of Biotechnology Success

“Employment in the biological sciences is very attractive,” explains Dale Olseth, CEO of SurModics in Eden Prairie. “These jobs represent high incomes, which create a healthy tax base for the state. But more importantly, people in biotechnology bring a cause with them: to help other people. And that good will and motivation rubs off on the community and state. People begin to support the arts, become involved in the community, volunteer, and reach out to others. All of that leads to a higher quality of life.”

Olseth continues, “To become a biotechnology state, our efforts will need to start small. Small companies, like acorns, need fertilizer, nurturing, sunshine, and water. If they don’t get it on a regular basis, their quest to be a large oak ends. Biodale is the nurturer for the University and smaller companies. Then care and cooperation from the state and the business community must be added. If cooperation stutters and sputters, the acorns soon lose their dynamics. Support from the state must be a primary lubricant.”



Dale Olseth

Student as Young Scientist

“EVER SINCE THE SIXTH GRADE, I knew that I wanted to study science,” says **Tori Myslajek**, a recent summa cum laude graduate from CBS. **“I had an excellent teacher who encouraged me.”**

Myslajek continued her scientific studies, and as a high school senior, she was able to expand her horizons at the University of Minnesota through Post-Secondary Enrollment Options. After high school, she decided to stay at the University and focus on biology.

“I’m interested in the human aspect of biology,” says Myslajek. **“Genetics and cell biology fascinate me because I want to understand how humans work at the molecular level.”**

Myslajek’s biological studies required the use of specialized equipment such as a Nikon E800 light microscope and a liquid-cooled digital camera—resources that she had access to in Biodale’s Imaging Center. As an undergraduate, she worked there for class research projects, her honors thesis, and her work as a research technician.



Tori Myslajek

“I used the Imaging Center to collect data for immunocytochemistry experiments. The help there is wonderful. David Gartner, Senior Imaging Specialist, always took time to show me how to use the equipment. And it’s so easy to schedule a time to use the microscopes and cameras. With the online scheduling system, I could schedule my work a couple of days in advance or even get in the same day.”

When Myslajek started at the University, CBS didn’t admit freshmen. But during her undergraduate career, many things changed. Freshmen can be admitted and Snyder Hall has been completely renovated and remodeled to host Biodale resources like the Imaging Center. **“Now lab classes can begin to use the Biodale resources,”** says Myslajek. **“Students can and should familiarize themselves with the great services available to them.”**

After graduating, Myslajek again chose to stay at the University. She continues her work in Professor Ross Johnson’s lab. As a junior scientist, she studies gap junctions—a specialized mechanism for cell communication—and she continues to use the Imaging Center.

“CBS is a good college with good student support,” says Myslajek. **“I felt like part of a family because I got to know the college, the faculty, and the staff, especially since I was part of the Honors Program. I always got the help I needed and I enjoyed working with people sharing my interests. You don’t get lost in CBS.”**

Kristen Murphy



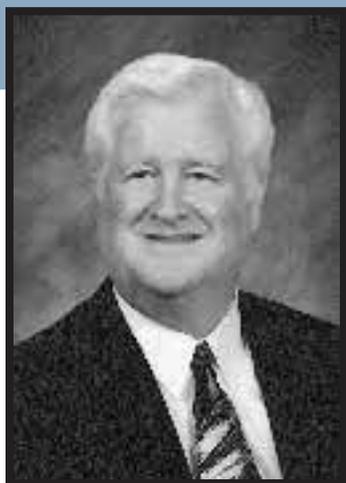
Program director Marc von Keitz (left) of the Biotechnology Resource Center Fermentation Process Development and Scale-up Laboratory (formerly part of BPTI) chats with Jeff Tate from Natural Biologics.

Biotechnology Partnerships

“Biodale is great for students,” says Doug Cameron, Director of Biotechnology for Cargill’s Central Research. **“They have an opportunity for hands-on experience during the semester and in the summer. Experience is the most critical thing when you go out to get a job. And when you have hands-on lab experience, that’s a big advantage over just coursework. With access to these facilities, students can get a better perspective of how their work can be applied.”**

During the groundbreaking ceremony for the Microbial and Plant Genomics Building and grand opening of Biodale, visitors from Cargill toured CBS’ newly renovated facilities. Cargill has worked with the Biological Process Technology Institute (BPTI) at the University, and they hope to make use of Biodale’s transcriptional array technology and proteomics technology. The formation of Biodale is an opportunity for industry colleagues and University faculty to expand their research, but more importantly, Biodale is ready to help the dreams of students—future scientists—to grow.

Expanding the Possibilities for Research and Education



Ron Phillips

RON PHILLIPS CAME TO THE University of Minnesota to study with Professor Charles Burnham, a pioneer in corn genetics. After obtaining his Ph.D., Phillips spent some time away from Minnesota, but the caliber and capability of the University leadership brought him back again.

“At the University, walls don’t deter contact between departments,” says Phillips. “Interaction is exceptional here and so is the quality and competency of the faculty. We have an atmosphere for cooperation and easy collaboration.”

Professor Phillips is now a Regents’ Professor in Agronomy and Plant Genetics and the Director of the Center for Microbial and Plant Genomics. When the Microbial and Plant Genomics Building opens in fall 2002, Professor Phillips will be one of the first faculty members to move in.

“The University is in the pack of leaders in the biotechnology field because of the strength and quality of the faculty here.”

“The new building will foster interaction,” explains Phillips. “Each floor will have comfortable, inviting areas for interaction. Professors and scholars will work on multi-disciplinary projects, sharing lab space that can shrink or expand depending upon needs.”

The Microbial and Plant Genomics Building will feature a lecture hall for hosting scientific talks and continuing education or outreach programs to teach the public about biotechnology and genomics.

“Educating the public is critical to the future of biological research,” stresses Phillips. “Hosting symposia on topics like genetically modified organisms (GMOs) will help people understand the importance of our work.”

Making the Microbial and Plant Genomics Building a center for education—both to internal University audiences and wider external audiences—is one of the main goals of the facility, along with cutting-edge research and applications of genomics and bioinformatics. The philosophy of open research and learning is expressed through the building’s glass exterior and spacious design. This is no fortress or hidden ivory tower, but a dynamic and living place for the exchange and formation of new ideas.

“The University is in the pack of leaders in the biotechnology field because of the strength and quality of the faculty here,” says Phillips. “What will set us apart are the ideas and quality of what we do—the usefulness of what we do.”

“Educating the public is critical to the future of biological research. Hosting symposia on topics like genetically modified organisms (GMOs) will help people understand the importance of our work.”

Professor Phillips recently traveled to the Philippines to visit with colleagues who are developing “golden rice”—rice with three added genes that produces beta-carotene, the precursor to vitamin A. The goal of this research: create food with a higher nutritive value in order to increase the quality of life in developing countries. The potential for positive impact is tremendous—better food to benefit the farmers and the end consumers.

“We are in a new era where we can think about what will be useful and desirable and then have the capabilities to produce it,” says Phillips. “In the end, we’ll see a highly desirable outcome. But we need continuing education so people can assess the merits of our research for themselves. And the multi-disciplinary study at the University, fueled by good coordination and discussion across campus, will lead to powerful changes.”

John Noltner

A New Era of Collaboration



Ellen Heath and Ruth Shuman (Genra Systems) and Professor David Bernlohr (Head of Biochemistry, Molecular Biology, and Biophysics) visit the Mass Spectrometry Consortium for the Life Sciences.

“I feel terrific seeing all these new developments in the College of Biological Sciences—it’s very exciting. It’s a sign of growth and a sign of partnerships with industry that can lead to biotechnology developments outside of the University. Biodale signals a new era of collaboration.”

—Ruth Shuman, President and CEO of Genra Systems

Winter Celebration

Nearly 300 visitors braved the snowy weather to witness the groundbreaking and explore Biodale facilities. The kickoff event brought together a lively mix of professionals with an interest in biology for a closer look at University initiatives.

President Yudof celebrates the future of biotechnology.



Gib Ahlstrand, Plant Pathology Scientist, talks about electron microscopy.



Kim Herman-Hatten, Assistant Scientist in the Advanced Genetic Analysis Center, explains her work to a Biodale visitor.



Visitors tour the Imaging Center. From left to right are Steve Kelly, Cynthia Scott, Mimi Tung, Ted Ferrara, Kate Jaycox, and David Gartner.

Photos by Kristen Murphy

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Nancy Rowe

Jerry Barnard

From the president

FOR THE FIRST TIME IN ALL my years as a doctor, I've been entertaining questions about my undergraduate work. People often ask about my graduate studies and residency. But now that Minnesotans are hearing news about the University's development program, they are asking questions about the need for undergraduate financial support.

CBS is experiencing a big leap in public exposure, in part because of the construction soon to begin for the Microbial and Plant Genomics Building, the Biodale research support facilities opening, and the final phases of the Molecular and Cellular Biology Building construction. This expansion and evolution of CBS will bring out its function and importance, making the college more visible to the general population.

Since the University has been in the news recently, I hear from alumni who feel a lot more pride in their undergraduate education. President Yudof and Dean Elde are emphasizing better student services and programs. Biodale is an added resource for students, as well as alumni in industry and research. The Microbial and Plant Genomics Building will host public forums on topics in biology. The evolution of CBS is making it a strong part of the community, and our sense of identity will grow with the University's accomplishments.

The Biological Sciences Alumni Society (BSAS) is undergoing an evolution of its own. Technology like e-mail makes locating and staying in touch with alumni easier than

ever. We now supplement face-to-face meetings with e-mail meetings every other month. As always, we work hard to integrate the needs of alumni with the needs of the college by promoting scholarship, mentoring and ongoing education. By expanding our scope one step at a time, we hope to add more BSAS opportunities for alums to network.

On the East coast, I found almost everyone knows of, or is a member of, their alumni association. This isn't the case in Minnesota, so I invite you to get involved with BSAS. The College of Biological Sciences is on target for more than just 15 minutes of fame. Discover for yourself why CBS is a large part of President Yudof's key proposals and plans for the future of the University, the state, and the scientific community.

Contact Paul Gersscheid, CBS Alumni Relations Coordinator, at 612-624-3752 or pgerssch@cbs.umn.edu to express your desire to help out or to give your ideas. We welcome all comments.

Jerry Barnard (B.S. 1978, M.D. 1983)
President, Biological Sciences Alumni Society

CALENDAR OF EVENTS

2001

Wednesday, April 11	Human Encounters and Conversations: Environment, Evolution, and Experience, Northrop Auditorium
April 18-20	Sixth International Symposium on the Pathology of Reptiles and Amphibians, Earle Brown Continuing Education Center
Wednesday, April 25	Life Sciences Undergraduate Symposium, Earle Brown Continuing Education Center, 1:30-4:30 p.m.
Wednesday, April 25	CBS Mentor Program celebration, Minnesota Commons Room, St. Paul Student Center, 5 p.m.
Thursday, April 26	Take Your Daughter to Work Day
Friday, May 4	Boullion Symposium, Science Museum of Minnesota
Tuesday, May 8	Biomaterials Symposium
Wednesday, May 9	All-College Meeting and Dean's Recognition, location TBA, 12:00-1:30 p.m.
Thursday, May 10	BSAS board meeting, 406A Biological Sciences Center, 5:30-7:30 p.m.
Saturday, May 12	CBS Graduation, Northrop Auditorium
Friday, June 29	UMAA annual meeting and celebration, McNamara Alumni Center, time TBA
September 28-30	BSAS Alumni Weekend at the Lake Itasca Forestry and Biological Station
Friday, October 19	CBS Homecoming Picnic, St. Paul Campus, 4:30-7:00 p.m.
Saturday, October 20	Homecoming game against Michigan State

For the complete college calendar, go to cbs.umn.edu/cgi-bin/calendar/calendar.pl. For the U of M events calendar, go to events.tc.umn.edu. For a list of biological seminars at the U of M, go to cbs.umn.edu/college_info/seminar.html.

Legislative Update

Alumni and Friends,

Thank you to those of you who have already contacted your legislator. Your help is greatly appreciated. Up to this point, the discussion has mostly been with the Governor and his budget proposal. We must now work with legislators to help answer the question, "What kind of University do you want?" It is critical that each legislator receive some positive messages from University supporters. The Legislative Network is working on organizing activities such as calling nights, phone trees, and other opportunities. You can all help by:

1) Forwarding the names of alumni and friends who you know would be willing to help with phoning.

2) Contacting your local legislators (for those who live in Minnesota) and encouraging them to support the full budget request. If you live outside the state, you can still be an effective advocate by contacting the Governor or the Higher Education Finance Committee chairs in the House and Senate. Information about the budget request and supporting materials can be found at www.umn.edu/govrel.

3) Working with people and organizations where you have some influence, and encouraging them to make contact with their legislators in support of the U. The more diverse our support, the more impact it will have.

The content of the message is up to you, but it should include a positive message about the growth, changes, and opportunities that have occurred in the past few years. We need to help legislators realize that the U is a much different place than in the past couple of decades.

Thank you. If you have any questions, please contact Paul Germscheid, Coordinator of Alumni Relations and Annual Giving, 612-624-3752 or e-mail pgermsch@cbs.umn.edu.

Class notes

Peter Moyle (B.S. 1969), Professor at University of California-Davis, gave a lecture in December at the Oakland Museum on California's freshwater fish species titled "Saving Salmon, Smelt & Splittail: Aquatic Conservation in California."

Steven Kirkhorn (B.S. 1973) is currently involved in teaching and consulting in agricultural health issues, both occupational and environmental, through the University of Minnesota and the Mayo Health System. He is developing a web-based educational module on agricultural respiratory disease for rural health care providers with funding from a National Institute for Occupational Safety and Health grant through the National Farm Medicine Center.

Steven Barker (B.S. 1975) joined Vista Research, Inc. in Sunnyvale, California as director of airport and regulatory affairs. He previously was director of corporate environmental programs for Seagate Technologies, LLC, in Scotts Valley, California, and has spent more than 20 years working in the environmental arena.

Becky Goldberg (Ph.D. 1986) was a featured speaker at the University's GMOs Conference on February 1. She is Senior Scientist at the

Environmental Defense's New York headquarters and works on public policy issues concerning food production. She recently served on the National Academy of Science's Committee on Genetically Modified Pest-Protected Crops.

Michael Boyce-Jacino (Ph.D. 1988) was recently appointed as chief technology officer for Orchid BioSciences' Life Sciences Group. Dr. Boyce-Jacino continues as vice president of research and development, overseeing day-to-day research and development operations for the Life Sciences Group as well as overall science and technology strategy for Orchid.

Fang-Miin Charlie Sheen (Ph.D. 1990) recently moved from Madison, Wisconsin to the San Francisco area to take a different position within Promega Corporation. In his new position as Field Applications Specialist, he interacts with customers—mainly life science researchers in biotech and pharmaceuticals—to understand their needs and to promote sales activities.

Jennifer Flor (B.S. 1994) is starting her fourth year as a Junior Scientist in the Microbial Ecology and Biocontrol Lab with Dr. Linda Kinkel from Plant Pathology at the University of Minnesota-Twin Cities. They are focusing on using green manures and antagonistic

Streptomyces in the control of potato scab and other soilborne plant diseases.

Paul Sheldon (Ph.D. 1997) recently completed a postdoctoral fellowship at the School of Pharmacy at the University of Wisconsin-Madison, working with Dr. C. Richard Hutchinson. In October, he joined MidWest Molecular, Inc. as a Principal Scientist. MidWest Molecular is a startup biotechnology company in the Minneapolis-St. Paul area.

Karen King (B.S. 2000) was accepted to the College of Veterinary Medicine at the University of Minnesota-Twin Cities and began taking classes fall semester 2000. Jalila Abu is working with her as a mentor.

Thank you to CBS Alumni Mentors:

Stephen England, MD: B.S. 1982

Sarah Gantert: B.S. 1994

Sally Hed: B.S. 1991

Curtis Henry: B.S. 1996

Mary Jarvis-Ahrens: B.S. 1974

Jennifer Larson: B.S. 1997

Danielle Maher: B.S. 1996

Lisa McKenzie: B.S. 1997

Cheryl Neudauer: B.S. 1991

Tim Robinson: B.S. 1990

Sarah Stai: B.S. 1994

