

18th Annual Life Sciences Undergraduate Research Symposium

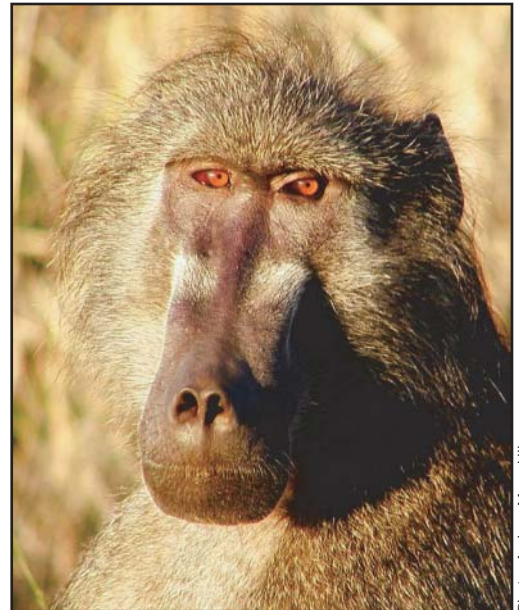


Photo: Andrew Macaskill

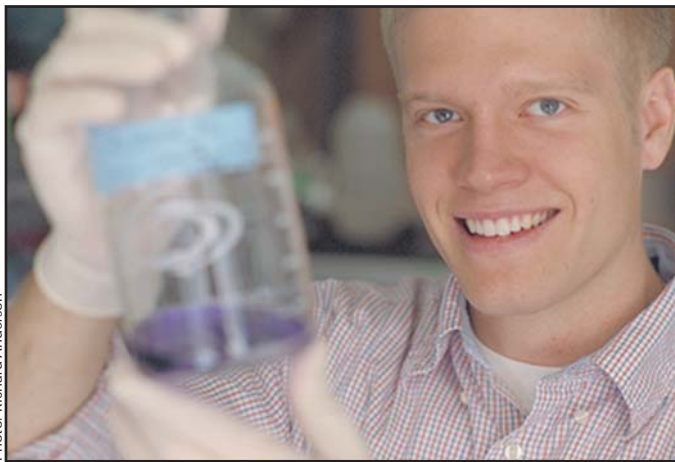


Photo: Richard Anderson

**University of Minnesota
Minneapolis Campus
Coffman Memorial Union
Great Hall
April 28, 2004**

Oral Presentations

1:30-2:00

Poster Session

2:00-4:30

Reception & Awards

4:30-6:00

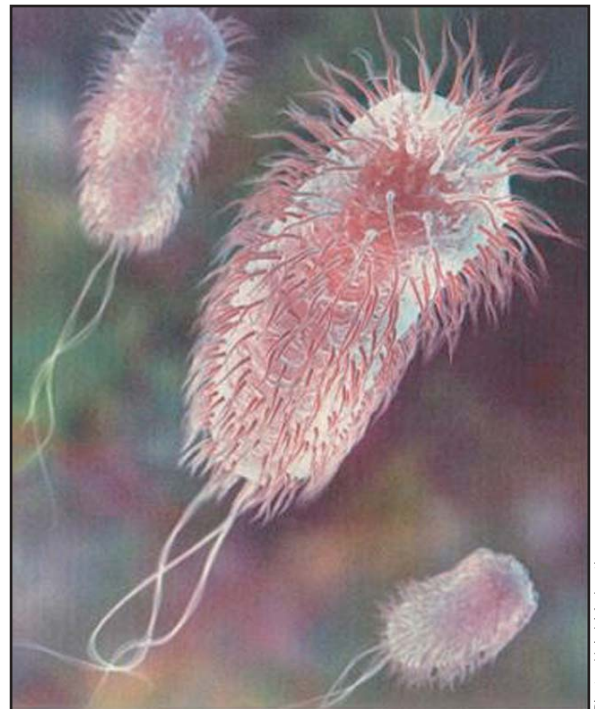


Photo: Hybrid Animations

COLLEGE OF ● **Biological**
● **Sciences**
● UNIVERSITY OF MINNESOTA

Hosted by the CBS Honors Program

MENTOR KUDOS ...

Agronomy and Plant Genetics

For Paul Porter,
Thank you very much for all your help and support. I have enjoyed working with you and I value your feedback and input. Thank you.

~ Lillian Magidow

Animal Science

For Douglas Foster,
Thank you for all your help through this whole process. There's no way I could have finished this all on time without you.

~ Meghan Richardson

For Douglas Foster,
Great thanks for being welcoming, quick witted, motivational, understanding of my bold independence on this project, and for being the greatest director behind the scenes of this complicated film. You truly are the silent father of the lab.

~ Eileen Kerkhoven

Biomedical Engineering

For David Odde and Koby Nahmias,
Thank you for allowing me an opportunity to do research in your lab, for acquainting me with the scientific process, and for your support throughout my research. Working in your lab has provided me with a newfound respect and appreciation for the pursuit of knowledge.

~ Abhinav Arneja

For Robert Tranquillo,
Thank you for giving me the opportunity to work in a research laboratory. I have gained valuable knowledge about lab and its protocols that I would not have otherwise.

I hope that one day I will be able to use this knowledge to improve on the research I perform myself. Thanks for everything!

~ Ta-Chun Hang

Biochemistry, Molecular Biology, and Biophysics

For Howard Towle,
As a beginning scientist, you stumble, get discouraged and frustrated. I felt same but thanks to the unquavering support of Professor Towle, I have been able to endure and understand that science is easier said than done. You were there to discuss the problem with me, suggested different review articles and you taught me how to handle the unforeseen. You have been wonderful. You will even take us out for lunch and I have been fortunate to have you.

~ Fausta Ditah

For Claudia Schmidt-Dannert,
Thank you for the opportunities you have provided and the introduction to the fascinating world of metabolic engineering. I have learned a great deal this year and am honored to have worked under your guidance. For Kevin Watts, You are a gifted scientist, a fabulous mentor, and an extraordinary teacher. It has been a privilege. Thanks.

~ Lisa Lenarz-Wyatt

For Howard Towle,
Dr. Towle was the greatest mentor one could ask for...always willing to help and answer questions!

~ Mohamed Moussa

Biochemistry, Molecular Biology, and Biophysics, cont'd

For Dave Bernlohr,
I thank you for taking this advisor-less transfer student under your wing. Though I am new to the lab, you guide me and have faith in me, as though I have worked here longer. I have already learned so much, and I look forward to the opportunities for learning that the future holds. Most of all, I thank you for instilling an interest of science and research in me. What I learn in your lab will be invaluable to my future. Thank you.
~ Joshua Wilson-Grady

For Howard Towle,
I would like to give my deepest appreciation to Dr. Towle for his guidance and tremendous support. Dr. Towle is truly the best mentor, academically and personally. What I have learned in his lab will become one of the most valuable assets in my life. I will never forget how he helped me go through the difficult times and I will treasure the joys we have shared with Lin, Brennon, Niko, Angela, and Fausta. Dr. Towle's encouragement and inspiration have helped me get closer to my goals. I wish this mentorship could last a life time.
~ Xiaosong Liu

For Janet Schottel,
Thanks for being there in lab throughout my misadventures with malformed gels, buying chemical reagents, and trying to get the digital camera to take a picture. I really appreciated this opportunity and without your help I am sure I would have had many more stories/problems.
~ Jason Motl

To Sharon Murphy,
Sharon has shown me how to persevere and continue when frustrations and other obstacles lie in the path toward future goals. Her guidance and encouraging words in the laboratory have affected my outside life as well. Thank you Sharon for being a great mentor.
~ Catherine Pham

CBS

For Kathryn Hanna,
I greatly appreciate Kathryn Hanna for helping me become more detail oriented. It has made my research more precise and emphasized the useful information by eliminating clutter.
~ Ryan Laux

Chemistry

For Gianluigi Veglia,
MIL GRAZIE PER TUTTI, IL MIO CAPITANO!
~ Kim Ha

For Mark Distefano,
I thank Mark for the invaluable opportunity to become involved with work in his lab for the past two years (biological chemistry, protein preparation, and cancer research). I have learned many valuable skills and the importance of research. You have been an excellent mentor, instructor, and advisor. I appreciate your understanding of and assistance with my undergraduate education and long-term goals in life. My utmost thanks also to Dr. JuHua Xu, Dr. Tamara Kale, Laila Albers and the rest of the Distefano group for their encouragement and support.
~ Benji Mathews

Chemistry, cont'd

For Mark Distefano and Lab,
I am thankful to have had this research opportunity; my undergraduate education would have been incomplete without it. To Mark Distefano, thank you for your expertise, encouragement, and the support you have continually shown for me. To Amy Tann, I am very appreciative for your unrelenting patience and the countless hours you devoted to assist me with this project and further my understanding. Finally, to everyone else in lab, thank you for creating a positive environment; it has been a pleasure working beside such great people!

~ Matthew Reeves

Clinical and Population Sciences

For Erin Malone and Eli Hendrickson, I would like to thank Dr. Malone and Dr. Hendrickson for their time and patience throughout the research project. This experience has been invaluable, and I am very grateful to both of you. I couldn't have done it without you!

~ Molly Welle

EEB

For Craig Packer,
I would like to thank my advisor and mentor Dr. Craig Packer. I have worked with Craig as an undergraduate research assistant since 1999. During this time Craig has given me guidance, support, and friendship. Thank you for giving me everything I needed, exactly when I needed it. I could not have asked for a better mentor.

~ Holly MacCormick

For Jennifer King,

Thank you for this incredible opportunity. I have learned more from you these past two semesters than I ever could have imagined. Thank you for always guiding me but never pushing. You always made me feel that I had total control and ownership over this project. That allowed me to feel passionate and excited about it. You are an incredible role model, scientist, and teacher who has impacted my life in so many ways. Thank you.

~ Elizabeth Brodeen

Fisheries, Wildlife, and Conservation Biology

For Andrew Simons and Tony Gamble,
Thanks for the wonderful opportunity. I have developed many skills that I will need in the future.

~ Krsna Rangarajan

For Andrew Simons, Jacob Egge, Pete Berendzen, Tony Gamble, and Brett Nagle,
I could not have done any of this without them.

~ Michael Bush

For Jim Perry and Mark Williams,
I want to thank you for your patience, guidance, expertise, and allowing me to pursue my dreams. Thank you for making the sky within my reach and making possibilities seem limitless. No matter where life takes me, I'll always think of you starting me in the right direction. I've learned a tremendous amount of biology and laboratory skills and cannot wait to continue this research with you!

~ Kelsey Dahl

*Fisheries, Wildlife, and
Conservation Biology, cont'd*

For Anne Kapuscinski,
I have known Anne for over two years now. She has been a wonderful mentor, supervisor, and friend to me. She has helped me identify my goals and taught me to achieve them. Thank you Anne for believing in me.

~ Ozge Goktepe

Food Science and Nutrition

For Franciso Diez-Gonzalez,
Thank you very much for your willingness to let me pursue this research project in your lab. This has been an enjoyable and valuable experience.

~ Julie Kuruc

For Ted Labuza,
Thank you so much for the opportunity to work in your lab and on this particular project. I have gained so much knowledge that is helping me now and I know will help me later in life. Thanks again!

~ Kellie Leinen

For Cathy Kotz,
Thanks for the great opportunity to be involved in research. I appreciate your time and advice and support for all my projects. Andy Thorpe, thanks for teaching me everything I know about research. I appreciate all your time, concern, and advice! Kevin Silverstein, thank you so much for all your time, patience, and advice on graduate schools. I have enjoyed learning some of the skills in bioinformatics and hope to utilize them in the future.

~ Amber Martell

*Genetics, Cell Biology, and
Development*

For Mary Porter,
Thank you for giving me the opportunity to do research in your lab. The experience has taught me more than I can ever learn in a classroom, and I will always be grateful for it. I have had a wonderful experience working with the lab these past two years.

Thanks again.

~ Irene Dorweiler

For Michael Simmons,
I would like to thank Dr. Simmons for providing me with the opportunity to do research with him in his lab. You were kind, helpful, and very patient explaining the ins and outs of the experiments. I learned a lot by working with you. Thank you for the memorable and rewarding experience.

~ Abraham Gol

For Deanna Koepp,
I'd like to thank you for your patience in helping me learn safe laboratory technique. I know there were times I had you worried, but I'm glad you have a sense of humor. Thank you for making my research experience memorable and enjoyable!

~ Ben Miller

For Pete Magee,
My first year at the University of Minnesota, Dr. Magee's course, Heredity and Human Society, confirmed my decision to major in Genetics, Cell Biology, and Development. Now as a senior, I feel very privileged to complete research in his lab. I greatly appreciate Dr. Magee's guidance and support. This project has given me greater confidence in pursuing research in the future. Thank you!

~ Charissa Lewis

GCD, cont'd

For David Largaespada and Steve Wiesner,

I would like to thank both of you for allowing me to be a part of this research. The past year has been a great experience and I have learned a tremendous amount. You have both been great role models and I admire your knowledge and dedication to this research. Steve, I can not thank you enough for your patience and support. I appreciate the time you have spent teaching me everything I need to know in lab and for always being there to help when I have questions or concerns. Thanks again! Sincerely, ~ Jamie Jones

For Kathleen Conklin,

Working in your lab was a great learning experience. It opened the doors of the real world of science to me, and the amount I absorbed was beyond what I thought I could comprehend. Today, due to that experience, I feel well-trained and confident to step out into the world and utilize my knowledge and skills. I know that I have brought exciting results at times and failures at others. But in the end, I would just like to thank you for taking me in with no experience. The lab was truly a home away from home for me!
~ Meenal Kapoor

For David Largaespada,

Since I joined the lab two years ago, I have learned one very important lesson: getting things to work 50% of the time is really good and 10% ain't bad either. I have felt privileged to have a mentor like David who has given me projects that play to my strengths and have the potential to turn into papers. He has given me the opportunity to use the science I have learned in class in a work environment. I would like to thank David for these things

and for always being the guy who chips in a little extra cash at Happy Hour.

~ Paul Lobitz

For Jeff Simon,

Thank you so much for allowing me to be a part of your lab for the past few years. It has been one of the best parts of my experience at the University of Minnesota. I have really enjoyed experiencing the highs and lows of research with you and the great people in your lab. Thanks for sharing your advice and knowledge with me. I have learned so much and am excited to keep learning for the rest of my life. Thanks! ~ Sarah Malmquist

For Ross Johnson,

Thank you for being my research advisor, mentor, and friend. My time in lab was incredibly fun and intellectually stimulating. I appreciate the time you spent guiding and teaching me. Thank you for everything!
~ Andrea Zins

For David Largaespada,

I would like to thank Dr. Largaespada for the opportunity he has provided me by allowing me to work in his lab. It has been a great experience, one I will cherish for a long time to come. I would like to thank him, more importantly for helping me make one of the most crucial decisions, till date, concerning graduate school and future career goals. I would like to extend my gratitude to my supervisors Lara Collier and John Ohlfest for their support and patience. ~ Shruthi Ravimohan

For Deanna Koepp,

Thank you for giving me the opportunity to do high caliber research in a high caliber lab. I never knew that ubiquitin could be so interesting. You have truly made my experience at the University an enjoyable and memorable one. ~ Remy Wong

Kinesiology

For Jurgen Konczak and Lab,
Thanks for teaching me the valuable skill
and knowledge related to research. I enjoy
working with you all and the smell of coffee
in the lab!
~Mandy Cheuk-Man Wong

Laboratory Medicine and Pathology

For Cheryl Neudauer,
I would like to thank Cheryl, from the
bottom of my heart, for being my mentor,
my advisor, my teacher and my friend. I am
incredibly thankful for everything you have
done for me. You are the one person that
has made the biggest impact in my
undergraduate life, helping me grow both
personally and educationally! Thank you!!!
~ Teodora Platikanova

Medicinal Chemistry

For Rick Wagner and Patrick Hanna,
I would like to thank you both for your
guidance, flexibility, and humor. Working in
your lab this past year has been the most
valuable and influential part of my
undergraduate education. I would also like
to thank the other members of the
Wagner-Hanna lab for all of their
assistance and patience. Thank you all!
~ Caleb Bates

For Carston Wagner,
Thank you for allowing me the opportunity
to work in your lab, and for your patience.
~ Stephen Hinkin

For Carston Wagner and Jonathan
Carlson,
Dr. Wagner, Thank you for the mentorship
and guidance you've provided throughout
this project. Your sincere effort to cater

a research experience to undergraduates
has been successful and invaluable. I
appreciate the experience and lessons I've
gained under your supervision. Jonathan
Carlson, I consider myself extremely lucky
to have had a mentor such as yourself in
this endeavor. Your patience and tutelage
in conveying your impressive experience and
knowledge is appreciated more than you
know. I am grateful to have you as a friend
and colleague and wish you the best of luck.
~ Jessie Kerns

Medicine

For Craig Henke,
I would like to take this opportunity to
thank my mentor for all of the help and
encouragement that he has given me
throughout my research. I have thoroughly
enjoyed working in a lab as a result of the
great atmosphere and tone your lab
provided me! I appreciate your
understanding of and assistance with my
undergraduate education and long-term
goals in life.
~ Nima Estharabadi

For Keli Hippen,
Thank you for the invaluable opportunities
and experiences you have given me this past
year. It has given me an entirely new way
of thinking and I am so enthralled to be a
part of your lab.
~ Katie Lee

For Peter Bitterman,
It has been a very wonderful experience
working in Dr. Bitterman's lab, and I am
looking forward to the challenges that lie
ahead.
~ Hong-Yiou (David) Lin

Medicine, cont'd

For Clifford Steer,
Thank you Cliff for all that you have done for me. You are one in a million! I couldn't be more grateful for finding a mentor like you. Thanks again!
~ Carolyn Presley

For Patricia Tam,
Thank you so much for the opportunity to do research in your lab. Thank you for all of your help with finding a project, developing a protocol, and learning all of the procedures necessary. I would also like to thank everyone in the lab for all of your help throughout the last year. Thanks!
~ Wade Schulz

For Catherine Verfaillie,
I would like to thank Dr. Verfaillie for giving me the opportunity to do research as a high school student. It's been absolutely amazing to work at the Stem Cell Institute. Dr. Verfaillie has been an inspiration for me, and it has been a tremendous honor to work for her.
~ Nicole Ali

For Wufan Tao,
I would like to thank my mentor, Dr. Wufan Tao, for his support, encouragement and excitement in directing my research. It has been a great pleasure to work with him and his colleagues. I would also like to thank Jing Pai and Hengning Ke for their support.
~ John Andersen

For Jennifer Hall,
Thank you for welcoming me into your lab and for taking so much time to explain the background and direction of our work! It has been a challenging experience and I thank you for granting me what Ami calls "a real research experience." I also want to

thank Qinglu, Ami, and Neeta for all their help in the lab. I enjoyed working with you all. Thank you all so much.

~ Esther Kao

Microbiology

For Ron Jemmerson,
Over the past year, you have been my employer, professor, and research mentor and I would like to thank you for each opportunity I've had to work with you. The learning experiences I've had in your lab are priceless. I truly appreciate your guidance, patience and flexibility. Thank you.

~ Senit Debesai

For Gary Dunny,
Thank you for allowing me the freedom to think critically about my project and for your guidance, input, and support. Being in your lab has made me a better scientist.
~ Kathryn Goeden

For Patrick Cleary and Haesun Park,
Thank you for giving me the chance to learn so much. I have learned so much in the past few months! Thank you for taking the time to teach me.
~ Matthew Schaefer

For Ron Jemmerson,
It has been a privilege to work with you in your lab - your patience and insight are gifts that have enhanced the way I look at science and research. Thank you for sharing your wisdom and enthusiasm with me!
~Harmony Tyner

Neuroscience

For Lorene Lanier,
You have been the best mentor anyone could ask for! Thank you so much for your individual attention, your advice, and the chance to do my own project in your lab. I have learned so much from you and I will remember this experience my entire life.
~ Kristyn VanderWaal

Ophthalmology

For Deb Ferrington,
Thank you for all of your support and encouragement over the past few years. I've learned so much from working with you that classes alone cannot teach. I've also learned to never give up, and to always keep a positive outlook. Your example has made such a positive impact on my life, I cannot even begin to say thank you.
~ Kristin Berg

Pediatrics

For Chester Whitley,
I cannot thank you enough for all the knowledge and experience I have gained with my time in your lab. I greatly appreciate all the guidance you have given me on the road to medical school. Thank you very much for all of your support and confidence in me! Sincerely,
~ Christopher Erickson

For Jamie Lohr and Lab,
I would just like to let you guys know how much fun I've had in the last year working in the lab. You have shown me what science is really about which is something I never would have learned in the classroom. I appreciate all of the time you have spent and continue to spend teaching me new and exiting aspects of life in, and outside, of

the lab. I have enjoyed getting to know each of you and look forward to spending more time with you this summer. Thanks for such a wonderful opportunity!
~ Ann Neumann

For Cheryl Gale and Lab,
I would like to thank Cheryl for helping me get research experience, and for teaching me scientific writing. Also, thanks to Maryam Gerami-Jejad for teaching me molecular biology and techniques and to Mark McClellan and Danielle Hausauer for helping me with Western blotting.
~ Nicholas Winning

For Cheryl Gale,
Thank you so much for your help over the past year. Both your help with this project as well as with my graduate school applications have been a tremendous assistance to me. Working with you has been a great addition to my undergraduate experience. Thank you so much for everything! The connection between my lab work and your work in the hospital has helped me connect to the bigger picture. Thank you and Best Wishes!
~ Cassandra Kistler-Anderson

Pharmaceutics

For William Frey and Tinna Ross,
My work in the Alzheimer's research center is my first experience with research. Dr. Ross's, Dr. Frey's, and Elizabeth's patience and willingness to answer my questions have made the experience very memorable and worthwhile. I would additionally like to thank Dr. Ross for "starting from square one" with me and being so willing to teach me. ~ Ashley Lawson

Pharmaceutics, cont'd

To William Elmquist and Lab,
I would like to give a special 'thanks' to Dr. Elmquist and all those in his lab who have greatly assisted me in my research effort. Your help and encouragement has helped me realize where my future direction will lie. Thanks a million.
~ Tate Winter

Psychology

For Jonathan Gewirtz,
Thank you for the opportunity to gain a truly exceptional research experience. I have grown tremendously as a result of being a part of your laboratory, both as an independent thinker and as a member of a team.
~ David Atkinson

Surgery

For William Engeland,
Thank you for giving me the wonderful opportunity to be a part of the laboratory! Through your guidance I have learned and gained much experience working in the lab. Thank you for challenging and advising me on various methods of scientific research. This has truly been a great undergraduate experience!
~ Anu Elayaperumal

For Dr. Dunn, Dr. Wasiluk, Dr. Leslie, Dr. Vietzen, Mike and Karen,
Thank you all so much for giving me the opportunity to work in your lab. It was through this project that I learned the pain, frustration and excitement of research. I will never forget the guidance and life lessons each of you have contributed. You all made the last year wonderful, despite the tedious

troubleshooting I faced in this project. Thank you for giving me a head start into the real world.
~ Rania Habib

For Bernhard Hering and Brett Levay-Young,
Thank you for the opportunity to conduct challenging and cutting-edge research. I am very appreciative of all of your continued support and advice throughout my project. I look forward to working with you in the future. Thanks again!
~ Forum Kamdar

Urologic Surgery

For Ken Roberts & Lab,
I would like to thank you for allowing me the opportunity to get involved with research. This experience has shown me what it really means to be involved in science, and how to get through all its ups and downs. I have gained knowledge and skills I need to become a scientist, as well as an appreciation for what I learned from stories about "the old days." Thank you for the incredible amount of support, patience, and knowledge you have given me. You and everyone in the lab have made my undergraduate research experience wonderful.
~ Miranda Bernhardt

Vet Pathobiology

For Michelle Wagner and Jim Mickelson,
I would like to thank you both for being so helpful and encouraging during the research and writing of my thesis. I greatly enjoyed working with you and learning from you and cannot imagine a better lab in which to have done my research.
~ Erin Bequette

Vet Pathobiology, cont'd

For David Brown and Lucy Vulchanova-Hart,

Dave and Lucy have been wonderful advisors for the past year. I have learned so much from both of them. Thanks for everything you guys!

~ Amanda Helvig

Veterinary and Biomedical Sciences

For Pam Skinner,

Thank you for having us do research in your lab. We have had a great experience and learned a great deal of information.

Thanks for all the fun and facts! *In vivo*,

~ Jill Grandt & Ryan Sunderman

For Kent Reed,

Thanks Kent for all the opportunities you've given me. Most undergrads are not presented with publications and conferences. I've learned 10-fold working in your lab.

~ Todd Knutson