

**Institute for Behavioral Genetics (IBG)
University of Colorado Boulder
Strategic Plan (2024-2029)**

Vision Statement

The Institute for Behavioral Genetics (IBG) at CU Boulder will be recognized as the world's premier location for research and education in the field of behavioral genetics. IBG will be a leader in using animal and cellular models to elucidate the mechanisms underlying behavioral genetic findings in humans. Our research will be known for its methodological rigor, reproducibility, and its contribution to improving human health and understanding complex traits.

Mission Statement

IBG's mission is to advance scientific understanding of the genetic and environmental influences on behavior through cutting-edge research, high-quality education, and interdisciplinary collaboration. Our work spans molecular genetics, quantitative genetics, and behavioral science, with the ultimate goal of contributing to human well-being. We foster a diverse, inclusive, and ethical research environment, training the next generation of scientists in rigorous, innovative methods.

Core Values

- **Excellence in Research:** We are committed to producing high-impact, reproducible research that drives forward the field of behavioral genetics.
- **Collaboration:** We foster interdisciplinary collaboration both within IBG and across the university and external partners to address the most complex research questions.
- **Education:** We provide outstanding education and mentorship to train future leaders in genetics, focusing on underrepresented groups in science.
- **Ethical Conduct:** We uphold the highest standards of ethical research, especially in the responsible use of genetic data and the accurate communication of genetic findings.
- **Diversity and Inclusion:** We believe that a diversity of backgrounds and perspectives enhances our research, education, and impact. We are committed to justice, equity, diversity, and inclusion (JEDI) in all aspects of our work.

Strategic Goals and Objectives

1. Make IBG a Hub for Neurodegeneration Research

Objective: Establish IBG as a leading center for research on neurodegenerative diseases such as Alzheimer's (AD), Parkinson's, and ALS, in collaboration with other departments at CU Boulder.

- **Expand Research on Neurodegenerative Diseases:** With NIH funding for neurodegenerative research surpassing \$5 billion in 2024, IBG will target critical gaps in neurodegenerative disease models, particularly through the use of iPSC, organoid, and advanced preclinical models.
- **P01 Center Grant from NIA:** Leverage IBG's unique longitudinal twin and family datasets to obtain a P01 center grant focused on normal aging and dementia risk factors, using deeply phenotyped samples to understand brain and biomarker development over time.
- **Strategic Faculty Hire:** Make a key hire in neurogenetics and iPSC models, complementing recent faculty additions and collaborations with BioFrontiers. This individual will bring expertise in high-content genomics and neurodegenerative modeling and will enhance IBG's translational research capabilities.
- **Strengthen Interdisciplinary Collaborations:** Foster partnerships with BioFrontiers, Integrative Physiology, and Psychology and Neuroscience. These collaborations will drive innovation and contribute to new grant proposals in neurodegeneration.

2. Build on IBG's Strength in Education and Training

Objective: Expand IBG's educational programs to enhance the training of graduate students and postdoctoral fellows in behavioral genetics.

- **Expand Graduate and Postdoctoral Training:** Utilize the Bob and Carol Lynch endowment to strengthen graduate education by creating a scholarship and eventually a fully funded GRA fellowship for IBG graduate students from foreign countries, with a special emphasis on students from developing countries. Continue to support IBG's NIH training grants (T32) and apply jointly with BioFrontiers for a new T32 focused on neurodegeneration research.
- **International Scholar and Cultural Exchange Program:** Grow the existing scholarship for international students from developing countries to attend our ISG workshop and gain training at IBG for two weeks following the workshop. Currently funded at \$25,000 annually from the Regeneron Pharmaceutical Corp, the goal is to expand this fund to \$100,000 over the next 10 years in order to fund full year stays for some of these recipients.
- **Increase the reach of IBG education via persistently available online material.** We will continue to develop a new professional looking and easy-to-navigate website that contains video lectures on behavioral genetics content developed during the pandemic years of teaching the ISG workshop. This website will be a repository for lecture videos and corresponding practicals and other material that will be publicly and persistently available for anyone to access at any time to aid in self-education. We have currently posted over 100 lecture videos online. They cover specific topics in methodology or theory and with typical lengths of 20 minutes to an hour and are thematically organized. Next to each set of topic-organized videos, we will post practicals publications, links, and other suggested videos to watch. It will

host forum channels so that anyone anywhere in the world can benefit from answers to previous questions or can ask/answer new questions posed by viewers.

- **New Courses in Neurodegeneration:** Develop courses focusing on the genetics of neurodegenerative diseases, fostering interdisciplinary education and preparing students for cutting-edge research in this growing field.
- **Ethical Training in Behavioral Genetics:** Create a course on the ethical principles guiding behavioral genetics research, focusing on responsible data use, the importance of diversity, and the ethical implications of genetic findings. (Dan's course)

3. Lead in Behavioral Genetics JEDI Initiatives

Objective: Make IBG a leader in justice, equity, diversity, and inclusion (JEDI) in the field of behavioral genetics, focusing on educating the public and increasing the diversity of scientists in the field.

- **Recruit Faculty from Underrepresented Groups:** Identify and pursue targets of opportunity to hire diverse faculty, particularly in emerging areas of genetics research.
- **Increase Diversity in Training Programs:** Aim to increase the number of trainees from underrepresented groups in IBG by providing scholarships and mentorship opportunities through endowments.
- **Outreach and Public Education:** In addition to our website dedicated to education of behavioral genetics methodology (described above), we plan to have an additional page that educates both the scientific community and the public on what behavioral genetic findings do—and do not—imply about differences between races and sexes. Continue publishing and promoting research that addresses and clarifies these issues, while condemning historical misuses of genetic research.
- **Support for International Graduate Students:** Establish new scholarships and research opportunities for outstanding international students through partnerships with foundations and endowments. This may include utilizing the Bob and Carol Lynch endowment to strengthen graduate education by creating a scholarship and eventually a fully funded GRA fellowship for IBG graduate students from foreign countries, with a special emphasis on students from developing countries

4. Strengthen IBG's Research Infrastructure and Resources

Objective: Modernize IBG's research infrastructure and resources to support high-impact research and collaboration.

- **New Building Initiative:** Push for a consolidated, state-of-the-art IBG building on East Campus to support all aspects of IBG's research and training activities. Explore options for shared facilities with BioFrontiers and other departments to foster collaborative research. This is an important long-term goal, because according to the CU Master Plan 2021, the IBG buildings (IBG and RL4) will eventually be demolished and the land they sit upon returned to open space. This

puts IBG in an awkward situation because, according to this Master Plan, IBG buildings “should not receive further investment.” This makes it impossible for IBG to physically grow on our current footprint or to renovate increasingly outdated buildings.

- **Update Research Facilities:** Secure funding to modernize IBG’s current research facilities, including acquiring cutting-edge equipment and technology to support molecular, cellular, and behavioral genetic studies. As noted, a major challenge here is that the University does not support further funding of IBG facilities, which means future updates must come from sources outside of CU.
 - **Data Access and Compliance Solutions:** Collaborate with the University Counsel and the Office of Contracts and Grants (OCG) to streamline access to public genomic datasets. Address current bottlenecks to ensure timely data access for faculty and trainees.
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Conclusion

The Institute for Behavioral Genetics is poised to lead the field of behavioral genetics over the next five years, with a focus on neurodegeneration, education, diversity, and infrastructure development. By prioritizing interdisciplinary collaboration, ethical conduct, and inclusivity, IBG will remain at the forefront of behavioral genetics research and education, contributing to solutions for some of the most pressing challenges in human health and behavior.