Understanding ourselves by studying the animal kingdom

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Research released today reveals a new model for a genetic eye disease, and shows how animal models—from fruit flies to armadillos and monkeys—can yield valuable information about the human brain. The findings were presented at Neuroscience 2013, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health.

Animal models have long been central in how we understand the human brain, behavior, and nervous system due to similarities in many brain areas and functions across species. Almost every major medical advance in the last century was made possible by carefully regulated, humane animal research. Today's findings build on this rich history and demonstrate what animals can teach us about ourselves.

Today's new findings show that:

- The nine-banded armadillo may serve as a model for certain types of progressive blindness. The animal's poor eyesight mimics many human disorders and may shed light on new treatment approaches for such diseases (Christopher Emerling, BS, abstract 150.06, see attached summary).
- Analysis of a baboon population reveals particular genes that may be involved in creating the "folds" in the structure of the brain. These findings provide information on how human genes may have evolved to create the brain's shape and function (Elizabeth Atkinson, BA, abstract 195.13, see attached summary).

- Monkeys and humans use similar brain pathways while processing decisions. Detailed analyses of similarities and differences in brain wiring could provide new insights into decision-making in humans (Franz-Xaver Neubert, abstract 18.03, see attached summary).

Other recent findings discussed show that:

- Use of powerful genetic tools in fruit flies is helping to reveal the basic building blocks of brain circuitry and function. This work is furthering our understanding of the human brain and may be helpful in developing medical diagnostic devices (Rachel Wilson, PhD, presentation 302, see attached speaker summary).
- Research in a tiny worm (*C. elegans*) has allowed scientists to map all of the connections between neurons in the species, including the pathways for movement, sex, and more. The findings offer new insights into how the human nervous system functions (Scott Emmons, PhD, presentation 009, see attached speaker summary).

"Neuroscience has always relied on responsible animal research to better understand how our brains and bodies develop, function, and break down," said press conference moderator Leslie Tolbert, of the University of Arizona, whose work in insects provides insights into brain development. "Today's studies reveal new ways that research on unlikely-seeming animals, such as armadillos, fruit flies, and worms, could have real impact on our understanding of the human brain and what can go wrong in disease."

Provided by Society for Neuroscience

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