Heather Hughes, UC Davis graduate student in the Department Medical Microbiology and Immunology, has been awarded a National Science Foundation (NSF) Graduate Research Fellowship to explore how the health of gut microbiota may be related to neurodevelopment. Imbalances in gut microbiota are reported to have a significant influence on human health, including immune system function, metabolism, neurodevelopment and behavior, and are associated with a variety of disease conditions.

Hughes’ research will examine the importance of the transmission of gut microbiota from mother to child and how initial gut colonization may shape the microbiota of the infant.

“My research examines transmission of dysbiotic microbiota during a critical period in early life development, the long-term impact on microbiota diversity in the offspring, and effects on immune responses in the brain and behavior,” Hughes said. “My hypothesis is that disrupting the microbiota in the pregnant mother will result in distinctly different microbiota profiles and lead to changes in immune responses and behaviors in her offspring.”

Hughes’ faculty advisor is Paul Ashwood, professor of medical microbiology and immunology. She is one of 2,000 individuals selected from 16,500 applicants for 2015 fellowships, which are given to early career researchers who show potential for transformative breakthroughs in science and engineering. She is one of only seven recipients in immunology nationwide to receive the award this year.
Hughes will receive $34,000 plus tuition each year for up to three years, along with access to NSF research facilities, collaborations and training.

The graduate fellowship program is critical to NSF’s strategy of developing the globally engaged workforce necessary to the nation’s leadership in advancing science and engineering research and innovation.

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