

KATHERINE PATZEL

Oxford Scholar, 2007

Degree: University of California, Davis, B.S. Genetics, 2006

Research Area: Genetics; Cell biology; Molecular Biology



Katherine Patzel graduated from the University of California, Davis with honors in Genetics in 2006. Her first experience with scientific research was during her junior year at UC Davis in Dr. Hilary Brodie's Laboratory of Otolaryngology investigating treatments for *Streptococcus pneumoniae*. Katy knew, however, that genetics was her true passion, and it led her to study the epigenetics of autism spectrum disorders in the laboratory of Dr. Janine LaSalle. She investigated methylation patterns in three GABA receptor genes clustered at 15q11-13 which have been implicated in autism and are adjacent to imprinted genes involved in two neurological disorders, Prader-Willi syndrome and Angelman syndrome. She also undertook a second project focused on the MECP2 gene, located on the X chromosome, which mutates to cause the genetic disorder known as Rett Syndrome. Rett Syndrome is an autism spectrum disorder and shares many overlapping traits with autism, rendering MECP2 another interesting candidate gene for autism. Her preliminary results suggested that there is skewing towards one allele in autistic female neurons as compared to controls, and she hopes that further research will form a more concrete picture. She also undertook work to study persistent organic pollutants with epigenetic alterations in autistic and developmentally-delayed children. Katy is using blood samples from distinctly autistic children and examining methylation patterns of candidate genes to test her hypothesis that polychlorinated biphenyls and polybrominated diphenyls cause methylation changes in the genome, explaining their enduring effects on neurodevelopment. Outside the lab, Katy volunteers at Oak Valley Elementary School in Davis, participates in community service, and enjoys sewing, windsurfing, backpacking, and horseback riding. Katy also had the opportunity to shadow a Pediatrician specializing in Genetics at the UC Davis Medical Center, an inspirational experience during which she "confirmed [her] desire to become a physician scientist and appreciated how in [her] future, medicine and research will complement one another."