



Benjamin R. Carone

Assistant Professor
Molecular & Cellular Biosciences

carone@rowan.edu

Education:

BS (Molecular & Cellular Biology, Philosophy), University of Connecticut
PhD (Genetics and Genomics), University of Connecticut
Postdoctoral (Transgenerational Inheritance/Epigenetics),
University of Massachusetts Medical School
Visiting Assistant Professor (Histone Modifications), Williams College

Research Expertise:

Epigenetics | Genomics | Histone modifications

My research interests are in the field of Epigenetics, which I approach by working to identify the epigenetic marks and molecular mechanisms responsible for causing and maintaining the inheritance of acquired states.

Investigating the capacity of conserved protein catalytic domains to establish and maintain epigenetic modifications in *S. cerevisiae* with the ultimate goal establishing the causal role of histone packaging in regulating gene expression. Specifically, my laboratory has created a suite of fusion proteins using CRISPR technology to target H3K9me to eGFP tagged endogenous *S. cerevisiae* genes which we interrogate expression levels using qRT-PCR as flow cytometry.

Testing the hypothesis that mammalian spermatid chromatin is highly organized and that this patterning can function to drive Transgenerational Epigenetic Inheritance. Determining the genome-wide organization of chromatin in germ cells using genomic and bioinformatics approaches. We are currently working with previously/externally generated datasets but will also be investigating spermatid chromatin in the context of Ctfc mutant mice at Rowan University as this project matures.

Member of:

American Society for Biochemistry and Molecular Biology (www.asbmb.org)
Genetics Society of America (www.genetics-gsa.org)
Sigma Xi (www.sigmaksi.org)

Recent Publications:

Sharma FNU, Conine CC, Shea JM, Carone BR, Belleannee C, Li X, Bing XY, Fauquier L, Chen Po-shen, Gu Weifeng, Fazio TG, Sullivan R, Mello CC, Garber M, Rando OJ (2015) Paternal diet alters tRNA fragment levels throughout the male reproductive tract in mammals. *Science*. 351:391-6.

Carone BR, Hung JH, Hainer SJ, Chou M-T, Carone DM, Weng Z, Fazio TG, Rando OJ (2014) High resolution mapping of chromatin packaging in mouse ES cells and sperm. *Dev Cell*. 30:11-22.

Carone BR, Xu T, Murphy K, Marinus MG (2014) High incidence of multiple antibiotic resistant cells in cultures of enterohemorrhagic *Escherichia coli* O157:H7 Mutat. Res. 759:1-8.