Toby P. Aicher

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**Education**

**Middlebury College** (February 2013 – present)

* **Bachelor of Arts candidate,** Molecular Biology and Biochemistry, February 2016.
* **GPA:** 3.73 (out of 4)

**Scientific Experience**

**Sandwick Lab, Middlebury Chemistry and Biochemistry Dept,** Middlebury, VT

*Senior Research, September 2015 – present*

* Investigated the impact of cytochrome c glycation on the initiation of apoptosis using HeLa cells for cell lysate and Western Blots for protein characterization.

**Hammell Lab, Cold Spring Harbor Lab Genomics Dept**, Cold Spring Harbor, NY

*NSF Scholar, CSHL Undergraduate Research Program, June – August 2016*

* Investigated BRAF inhibitor resistance in metastatic melanoma and helped develop and test software to analyze and cluster single cell RNA-sequencing data.
* Processed, clustered, and analyzed single-cell RNA sequencing data and programmed software in R.

**Lipsick Lab, Stanford Pathology and Genetics Dept,** Stanford, CA

*Genetics Scholar, Stanford Summer Research Program, June – August 2015*

* Investigated the role of the oncogene Myb, mip120 and the dREAM complex during eye development in *Drosophila Melanogaster.*
* Utilized fluorescent confocal microscopy, ran qRT-PCR and imaged cryosections.

**Internship Experience**

**Porter Hospital Internship** (January 2016)

*Porter Hospital Intern*

* Shadowed a cardiologist for 60 hours over four weeks.
* Shadowed a radiologist, orthopedic surgeon, hospital lab tech, pathologist, and hospice care nurse for one day each.

**Conferences**

**A Future in Oncology**, Norris Cotton Cancer Center at Dartmouth, Hanover, NH (Fall 2015)

* Attended two days of lectures on oncology research and treatment.
* Presented research at conference poster session.

**Awards and Grants**

* National Science Foundation Scholar (Summer 2016)
* Stanford Genetics Scholar (Summer 2015)
* Middlebury College Scholar (four semesters – GPA over 3.6)
* Middlebury Undergraduate Summer Funds Award (Summer 2014)

**Laboratory Skills**

* Confocal fluorescence microscopy and immunohistochemistry
* PCR, gel electrophoresis, RT-PCR, western blotting, affinity chromatography
* Cell culture (Hela, HL-60, Jurkat cells) and viability assays
* Single-cell RNA-sequencing quality control, identification and quantification of genes expressed, differential analysis, gene set enrichment analysis, and clustering.

**Publications**

* Yu-Jui Ho, David Molik, **Toby Aicher**, Molly Hammell. “SAKE – Single-cell RNA-seq Analysis and Klustering Evaluation.” (Under review at Cell Systems).

**Computer and Language Skills**

**Language –** Spanish, written and conversational proficiency

**Computer –** Programming in Java, Python, Bash, and R; Microsoft Excel, Microsoft Powerpoint Adobe Illustrator

**Leadership and Volunteer Experience**

**Middlebury College Observatory** (Spring 2014 – present)

*Observatory Assistant*

* Trained on Middlebury’s 11 and 24-inch telescopes and helped at public outreach events as a telescope assistant and educator.

**Middlebury Newspaper** (Fall 2013 – present)

*Editor of the Arts and Science Section and Science Writer*

* Editor for the Middlebury Campus’s Arts & Science Section (fall 2015 - present).
* Written over 30 science articles.

**Chemistry tutoring** (Fall 2015)

*Chemistry Tutor*

* Tutored students for General Chemistry II. Helped students complete their homework, learn new material, and study for tests.