

Andrew Severin**Scientist I**

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 Department of Ecology Evolution and Organismal Biology
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Background:

My group works at the interface between genetics and bioinformatics translating big data into informative data for interesting biological questions. I work with a wide variety of organisms from viruses, mycoplasmas and bacteria to soybean, maize, Arabidopsis, potato, nematode, pig, painted turtle, insects, zebrafish, and yellowtail. I have extensive experience with genome assembly, transcriptome assembly, RNA-Seq, SNP/InDel calling, metagenomics, introgression mapping, GWAS, and genetic map construction. The primary focus in the last year and a half has been genome assembly, annotation and the creation of tools for genomic resource development for *Seriola dorsalis* and teosinte. These same tools will be used to advance our understanding of soybean cyst nematode, *Phytophthora sojae*, and Abalone in the coming year.

Earned Degrees:

Institution	Major/Area	Degree	Dates
North Dakota State University	Biotechnology	B.S.	2001
Iowa State University	Biophysics	Ph.D.	2009

Employment History:

Institution	Position	Dates
Iowa State University present	Genome Informatics Facility Manager	2011-
Iowa State University 2009-2011	Post-doctorate (Bioinformatics)	2009-

Teaching Experience:

Institution	Class	Description	Dates
Iowa State University Fall 2012, Fall 2014	BCB 660 3 credit	NGS Data Processing in Genomics 22 students	
Iowa State University Fall 2014	LAS 103D 1 credit	Big-Data, Biology and DNA 8 students	
Iowa State University Fall 2013, Spring 2014	BIOL 499 variable credit	Research Independent Study 2 students	
Iowa State University Spring 2013, 2014	GEN 542B 1 credit	Intro to Linux and HPC 11 students	
North Dakota State University Fall 2001	Elementary Algebra 3 credit	~20 students each in 3 sections	

Professional Activities:

- XSEDE Campus Champion for Iowa State University 2014-present
- Chair of Agronomy Society Association, bioinformatics community, (2013)
- Bioinformatics undergraduate club advisor, Iowa State University (2013)

Honors and Awards:

- Letter to the editor of Science 331(6024):1516, March 2011

- Roy J Carver Biotechnology Fellowship Award recipient at ISU, 2007-2008
- Biotechnology Graduate Fellowship Award at ISU, 2003-2007
- Departmental Graduate Student Teaching Award at ISU, 2006.

Grants Received

Development of a genomic toolkit to guide broodstock selection and culture practices for <i>Seriola lalandi</i> and <i>Seriola rivoliana</i> . (NOAA SaltonStall Kennedy) PI: Andrew Severin CoPI: Mark Drawbridge Project Partners: John Hyde, Catherine Purcell	2015-2017	PI	\$298,859
Development of a genomic toolkit for <i>Haliotis</i> species to guide broodstock selection and endangered species restoration (NOAA SaltonStall Kennedy) PI: Andrew Severin Project Partners: John Hyde, Catherine Purcell	2015-2017	PI	\$282,852
An integrated approach to enhance durability of SCN resistance for long-term, strategic SCN management (The North Central Soybean Research Program) PI: Thomas Baum CoPIs: Greg Tylka, Melissa Mitchum, Henry Ngyuen, Mathew Hudson, Brian Diers, Andrew Severin	2015-2016	Co-PI	\$593,260
Development of a genomic toolkit to explore genetic diversity of soybean cyst nematode populations. (NSF CAMTech Center funding) PI: Thomas Baum CoPI: Andrew Severin	2015-2016	Co-PI	\$130,000
Genomic Resource Development of Yellow Tail, Teosinte, Soybean and <i>Steptochaeta</i> (XSEDE computing grant) PI: Andrew Severin Co-PIs: Michelle Graham, Matthew Hufford, Arun Seetharam, Usha Muppirala	2014	PI	\$111,158
The effect of rotations of host resistance genes (<i>Rps</i>) on pathogen avirulence genes (<i>Avr</i>) in the soybean- <i>Phytophthora sojae</i> pathosystem (Iowa Soybean Association) PI: Alison Robertson CoPI: Andrew Severin	2014-2015	Co-PI	\$157,857
Bioinformatic infrastructure & training PI: Amy Toth CoPI: Glenn Leucke, Andrew Severin	2012	Co-PI	\$17,901

Government Bids:

Pacific Albacore Genome Assembly and Sex Determining Marker Development	2015-2016	PI	\$39,999
Seriola Dorsalis Sex Determining and Regional Marker Development	2014-2016	PI	\$52,398
Genome Assembly of Seriola Dorsalis and RNA-Seq Analysis of Growth heterogeneity	2012-2014	PI	\$36,491

Recent Publications

1. C.M. Pilcher, C.K. Jones, M. Schroyen, A.J. Severin, J.F. Patience, C.K. Tuggle, J.E. Koltcs, 2015. Transcript profiles in longissimus dorsi muscle and subcutaneous adipose tissue: A comparison of pigs with different post-weaning growth rates. Journal of Animal Science Journal of Animal Science 93 (2015): 2134–2143
2. Mou KT, Muppirala U, **Severin AJ**, Clark T, Boitano M, Plummer PJ., 2015. A comparative analysis of methylome profiles of Campylobacter jejuni sheep abortion isolate and gastroenteric strains using PacBio data. Frontiers in Microbiology, 5, p.782.
3. Standage et al., 2015. Genome sequence and annotation of the primitively social paper wasp Polistes dominula. (in preparation).
4. Solin, S.L. et al., 2014. Molecular and Cellular Characterization of a Zebrafish Optic Pathway Tumor Line Implicates Glia-Derived Progenitors in Tumorigenesis. *PLoS ONE*, 9(12), p.e114888.
5. Peiffer, G.A. King KE, **Severin AJ**, May GD, Cinzia SR, Lin SF, Lauter NC, Shoemaker RC, 2012. Identification of Candidate Genes Underlying an Iron Efficiency QTL in Soybean. *Plant physiology*.
6. **Severin AJ**, Cannon SB, Grant D, Shoemaker RC (2011) Changes in twelve conserved soybean genomic regions following three rounds of polyploidy *The Plant Cell Online*, 23(9), pp. 3129–3136.
7. Young, N.D. et al., 2011. The Medicago genome provides insight into the evolution of rhizobial symbioses. *Nature*, 480(7378), pp.520–524.