

# Megan A Barela Hudgell

## Work Experience

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**Department of Biology, University of New Mexico (UNM), Albuquerque, NM** 2022 - current  
NSF Post-Doctoral Fellow in Biology; advisors: Irene Salinas and Thomas Turner  
Fellowship research: "Innate immunity could buffer extinction risk in genetically compromised populations"

## Education

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**Department of Biological Sciences, George Washington University, Washington DC** 2013 – May 2022  
PhD; advisor: L. Courtney Smith  
Dissertation: "The Complexities of the Sea Urchin Immune System. Dynamic changes in coelomocyte populations and the evolution of the SpTransformer genes"

**Department of Biology, University of New Mexico (UNM), Albuquerque, NM** 2009 - 2013  
B.S., Biology; advisors: Eric S. Loker and Michelle Gordy  
Undergraduate research: "Mechanistic determinants of host specificity of the parasite *Schistosoma mansoni* and the snail *Biomphalaria obstructa*"

**Department of Biochemistry and Molecular Biology, UNM, Albuquerque, NM.** 2009 - 2013  
B.S., Biochemistry, *magna cum laude*

## Skills

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**Laboratory techniques:** Cell and Molecular biology, Microinjection techniques, Florescent microscopy, Flow cytometry, Animal care and immune challenge, Sea urchin larval culture, Algal culture, General lab maintenance

**Software:** BioEdit, MEGA, GenePalette, BLAST, Adobe Photoshop, MS Office, PRANK

## Manuscripts in preparation

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**Barela Hudgell, M.A.,** Smith, L.C., Lipofection mediated transfection fails for sea urchin coelomocytes. In Revision.  
**Barela Hudgell, M.A.,** Grayfer, L., Smith, L.C. Coelomocyte populations in the sea urchin, *Strongylocentrotus purpuratus*, undergo dynamic changes in response to immune challenge. In Prep

## Publications

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**Barela Hudgell, M.A.,** Grayfer, L., Smith, L.C., 2022. Coelomocyte populations in the sea urchin, *Strongylocentrotus purpuratus*, undergo dynamic changes in response to immune challenge. *Front. Immunol.* 13, 940852.

**Barela Hudgell, M.A.,** Grayfer, L., Smith, L.C., 2022. A flow cytometry based approach to identify distinct coelomocyte subsets of the purple sea urchin, *Strongylocentrotus purpuratus*. *Dev. Comp. Immunol.* 130, 104352.

**Barela Hudgell, M.A.,** Smith, L.C., 2022. Lipofection mediated transfection fails for sea urchin coelomocytes. *PLoS One* 17(5): e0267911.

**Barela Hudgell, M.A.,** Smith, L.C., 2021. Sequence Diversity, Locus Structure, and Evolutionary History of the SpTransformer Genes in the Sea Urchin Genome. *Front. Immunol.* 12, 744783.

Smith, LC, V Arriza, **MA Barela Hudgell**, AG Bodnar, KM Buckley, N Dheilly, N Franchi, SD Fugmann, R Furukawa, J Garcia-Arraras, JH Henson, T Hibino, ZM Irons, C Li, CM Lun, AJ Majeske, M Oren, P Pagliara, A Pinsino, DA Raftos, JP Rast, B Samasa, CS Schrankel, L Stabili, K Stensväg, E Sutton. 2018. Complexity of the Immune System in Echinoderms. In "Advances in Comparative Immunology", EL Cooper, ed. Springer Publisher. Chapter 13, pp 409-501

Oren M, **MA Barela Hudgell**, B D'Allura, J Agronin, A Gross, D Podini and LC Smith. 2016. "Short tandem repeats, segmental duplications, gene deletion, and genomic instability in a rapidly diversified immune gene family." *BMC Genomics*.

Oren, M, **MA Barela Hudgell**, P Golconda, CM Lun and LC Smith. 2016. Genomic instability and shared mechanisms for gene diversification in two distant immune gene families: the plant NBS-LRR genes and the echinoid 185/333 genes. In "The Evolution of the Immune System, Conservation and Diversification" (D Malagoli, ed.). Elsevier Inc. Academic Press, London. pp. 295-310.

## Teaching experience

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Mentored five undergraduate researchers in independent research project 09/2015 – 03/2020  
Teaching Assistant, The George Washington University, Washington DC 09/2013 – 05/2015  
Introductory Biology: Cells and Molecules and The Biology of Organisms

## Awards

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Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Undergraduate Presentation Award and Travel Scholarship	2012
UNM 2 <sup>nd</sup> Place Undergraduate Research Symposium undergraduate presentation award	2013
GWU Wilbur V. Harlan Graduate Student Summer stipend	2014 – 2016, 2018, 2019
GWU Wilber V. Harlan Fellowship Award	2017
GWU Summer dissertation Fellowship	2018

## Presentations

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North American comparative immunology workshop, Banff, Canada, poster	06/2022
North American comparative immunology workshop, Waterloo, Canada, poster	06/2019
Developmental Biology of the Sea Urchin XXV, Woods Hole, MA poster	10/2018
14th Congress of the International Society of Developmental and Comparative Immunology, Santa Fe, New Mexico, talk	07/2018
GWU Harlan Research Day, Washington, DC, poster	09/2017
North American comparative immunology workshop, Raleigh, NC, talk	06/2017
GWU Harlan Research Day, Washington, DC, poster	09/2016
GWU Harlan Research Day, Washington, DC, poster	09/2015
13th Congress of the International Society of Developmental and Comparative Immunology, Murcia, Spain, poster	07/2015
GWU Harlan Research Day, Washington, DC, poster	09/2014
North American Comparative Immunology Workshop, Albuquerque, NM, poster	06/2014
Biochemistry & Molecular Biology Research Day, Albuquerque, NM, talk	04/2013
88th Meeting of the American Society of Parasitologists, Quebec City, QC, Canada, talk	06/2013
UNM Undergraduate Research Symposium, Albuquerque, NM, talk	05/2013
SACNAS National Meeting, Seattle, WA, poster	10/2012
UNM Undergraduate Research Symposium, Albuquerque, NM, poster	08/2012
Nursing Diversity Surgical Intensive Program, Albuquerque, NM, talk	08/2012
87th Meeting of the American Society of Parasitologists, Richmond, VA, talk	06/2012
UNM Research Day, Albuquerque, NM, poster	05/2012
SACNAS National Meeting, San Jose, CA, poster	10/2011
UNM Undergraduate Research Symposium, Albuquerque, NM, poster	08/2011