

**The Innate Immune System of the Lobster, *Jqo ctwu" c ogtkecpwu*: Characterization of Hemocytes Throughout the Lobster Molt Cycle**  
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Lobsters have become an animal of significance in our society, specifically in Maine. Ecologically, they are mid-trophic consumers, making them part of the energy transfer from primary consumers to predators. In 2018, the lobster industry generated more than \$500 million in Maine. It has also created around 39,500 jobs in Maine alone, as 80% of the lobsters in the United States come from Maine (Greene et al. 2020). Lobsters have also become integral parts of coastal communities. Like commercial lobster plants in the state, lobsters are more exposed and vulnerable to protect

themselves in other ways.

The lobster immune system is of interest because they only have an innate immune system. This means that their responses are non-specific. Lobsters respond to immune stressors through different cellular functions. Their cells can perform adhesion (clotting), encapsulation (surrounding the foreign invader and killing it), or exocytosis (releasing certain defenses from the cell). In exocytosis, antimicrobial peptides can be released from the cell. Antimicrobial peptides are small,

and granulocytes (Vu et al. 2018). There is still a lot to be found about the different compositions of each type of hemocyte.

This summer, I focused on optimizing the separation of the three hemocyte types in order to perform proteomics on each cell type to determine their protein composition. I used a Percoll density gradient to create layers with the cell types and separate them from one another and from the plasm

## References

Greene, M., Sefransky, M., Wang, C., McClenachan, L. (2020). Diversifying Maine's coastal economy: A transition from lobster fishing to kelp aquaculture? Spire.  
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