**Variant Acid β-Glucosidase and Gaucher disease**

**Resources**

**Authors:** Kathleen Cornely, Roderico Acevedo, and Kristen Procko

The following papers will assist **instructor preparation for the case**:

* Liou, B., Kazimeirczuk, A., Zhang, M., Scott, C. R., Hegde, R. S., and Grabowski, G. A. (2006) Analysis of variant acid b-glucosidases, *J. Biol. Chem.* **281(7)**, 4242-4253.
* Siebert, M., Sidransky, E., and Westbroek, W. (2014) Glucocerebrosidase is shaking up the synucleinopathies. *Brain* **137**, 1304-1322.
* Smith, L, Mullin, S., and Schapira, A. H. V. (2017) Insights into the structural biology of Gaucher disease. *Exp. Neuro.* **298**, 180-190.

**Suggested Student Preparation**

* Student preparation Step 1: Students will need to be provided with the basics of how to use the program PyMOL or an equivalent program, to carry out the exercises in the case study.
* Student preparation Step 2: An introduction to the case, including a discussion of the strategies used by the inhibitors to treat the disease, would be helpful. If cellular trafficking is not covered in the course, a review of the mechanism used by the cell to target proteins to the lysosomes would be helpful.

**Other Resources**

* + In addition to materials provided by the instructor that assist students in their learning of the pre-requisite material, students will need access to the molecular visualization program PyMOL. Colleges and universities can obtain a site license for this software for a reasonable price; a free version of the program is also available <https://pymol.org/2/>
  + The character Lila is based on an actual patient case study. An interview with the patient can be found at this link: <https://www.youtube.com/watch?v=4SBChnEvKlY&t=8s>