Sigal Lechno-Yossef Faculty page

I’m interested in studying the basic and applied aspects of cyanobacterial biology, using molecular techniques. Cyanobacteria recognized as the ancestors of plant chloroplasts, have been extensively studied as simple models for analysis of photosynthesis. However, it is now recognized that cyanobacteria have numerous pathways that differ from those in plants, and that might be exploited to improve plants or to produce compounds of commercial interest.

While working with Prof. C. P. Wolk, I studied differentiation of vegetative cells to nitrogen-fixing cells called heterocysts in *Anabaena*sp. PCC 7120. We applied our basic understanding of heterocyst biology toward producing hydrogen as a commodity.

With Prof. Cheryl Kerfeld and Prof. Beronda Montgomery, I am now involved in basic and applied study of carbon assimilation and photoprotection in a different cyanobacterium, *Fremyella diplosiphon*. By combining molecular and biochemical approaches, we can now overexpress and purify proteins from their native host enabling insights that cannot be obtained when expressing the same proteins heterologously in *E. coli*.