Constraining Evolution —> Avoiding Drug Resistance: Lessons from Viruses

Drug resistance negatively impacts the lives of millions of patients and costs our society billions of dollars by limiting the longevity of many of our most potent drugs. Drug resistance can be caused by a change in the balance of molecular recognition events that selectively weakens inhibitor binding but maintains the biological function of the target. To reduce the likelihood of drug resistance, a detailed understanding of the target’s function is necessary. Both structure at atomic resolution and evolutionarily constraints on its variation is required. “Resilient” targets are less susceptible to drug resistance due to their key location in a particular pathway. This rationale was derived from our lab’s experience with substrate recognition and drug resistance in HIV, HCV and influenza. These principals are likely more generally applicable to other quickly evolving diseases where drug resistance is quickly evolving.

Friday, January 26, 2018
12:15 P.M.
Sackler Sciences Building, Room S121
Luncheon to be served at 11:45
Room S325 Sacker Sciences