Microsymposium

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Virus Maturation and the VIPERdb Virus Structural Database

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VIPERdb (Carrillo-Tripp, M., Shepherd, C. M., Borelli, I. A., Venkataraman, S., Lander, G., Natarajan, P., Johnson, J. E., Brooks, C. L., 3rd, and Reddy, V. S. 2009. VIPERdb2: an enhanced and web API enabled relational database for structural virology. Nucleic Acids Res 37:D436-42) is a database for icosahedral virus capsid structures. The emphasis of the resource is on providing data from structural and computational analyses on these systems, as well as high quality renderings for visual exploration. The web site includes powerful search utilities and useful database interface tools. Here we use VIPERdb to address the dynamic character of a virus by relating cryoEM based models of maturation intermediates and associated variance analysis to the high resolution coordinates in VIPERdb for the T=4 Nudaurelia Capensis ω Virus. The outcome is a structure-based description of the maturation energy landscape at near atomic resolution (Tang, J., Kearney, B., Wang, Q., Doerschuk, P. C., Baker, T. S., and Johnson, J. E. 2013. Geometric and Dynamic Analyses of Nudaurelia capensis ω Virus Maturation Reveal the Energy Landscape of Particle Transitions. J. Mol. Recog. Accepted for publication).