Peter G. W. Gettins

Current Position: Director of the Center for Structural Biology and professor in the Department of Biochemistry & Molecular Genetics at University of Illinois at Chicago

Education: D. Phil. in Biochemistry (1979) from Oxford University in the United Kingdom

Non-scientific Interests: Cycling, hiking, travel, gardening, languages, opera, music

I acquired my love for protein structure, conformational change, and the use of NMR spectroscopy in the last (research) year of my undergraduate degree at Oxford in the laboratory of Ray Dwek. So, I was happy to continue working in his lab for my doctoral studies. My thesis work was on binding of small haptens to Fab antibody fragments using NMR. Some of these happened to be sugar binding antibodies, which, together with a chance side project looking at calcium binding to heparin, led to an interest in what structural changes occurred when heparin bound to antithrombin. I was not able to pursue this question during my doctoral work, and I used NMR on a quite different system during my postdoctoral work at Yale. However, I returned to it upon starting my first faculty position at Vanderbilt in 1984, using ^{1}H NMR to examine the structural perturbations that occur when heparin binds to antithrombin. While I have maintained a strong research interest in antithrombin since that time, I have developed a wider interest in the whole family of serpins to which antithrombin belongs, in particular examining how the serpin suicide inhibition mechanism works and how the serpin:proteinase reaction is regulated by cofactors.

Steven T. Olson

Current Position: Professor and Director of the Center for Molecular Biology of Oral Diseases at University of Illinois at Chicago

Education: Ph.D. in Biochemistry (1979) from University of Michigan, Ann Arbor

Non-scientific Interests: Cycling, hiking, travel, oenology, theater, music

My interests in enzyme mechanisms began as a graduate student under Vince Massey at the University of Michigan where I worked on a bacterial flavoenzyme involved in redox metabolism. Wanting to move into a more biomedically relevant area, I chose to continue working on proteolytic enzymes in blood coagulation and their regulation by protein inhibitors in the laboratory of Joe Shore, emphasizing rapid kinetic approaches. This was a time when many of the blood clotting factors were being purified in sufficient amounts to permit biophysical studies. Being in a hospital, we were able to purify gram quantities of the protein antithrombin from outdated human plasma that allowed us to perform the first rapid kinetics studies of the interaction of this protein with its allosteric effector, heparin. This was made possible by a collaboration with my longtime Swedish colleague, Ingemar Björk, who provided the affinity-purified heparin for our first studies. It became apparent shortly after I began my postdoctoral studies that the protein inhibitor I was studying was a member of a large evolutionarily conserved family of proteins that were given the name “serpins.” Since then, my interests have focused on the complex regulation of proteolytic enzymes in many physiologic contexts by serpins and their cofactors.

Read Drs. Gettins and Olson’s article entitled: Exosite Determinants of Serpin Specificity

http://www.jbc.org/cgi/content/full/284/31/20441