

Meet a New ASP Member

New ASP Member Dr. Stephen Polyak is an Associate Professor in the Department of Global Health, at the University of Washington, Seattle, Washington. Dr. Polyak holds numerous other positions, including Member of the Center for AIDS Research at the University of Washington/ Fred Hutchinson Cancer Research Center and Affiliate Investigator in the Vaccine and Infectious Disease Division, also at the Fred Hutchinson Cancer Research Center. Dr. Polyak is a virologist and cell biologist interested in the impact of natural products on these organisms. He shares his interest in collaborating with other ASP members as well as his enthusiasm for music. We are excited to welcome Dr. Polyak to the ASP and look forward to meeting him at this year's Annual Meeting.

By Dr. Dan Kulakowski

How did you hear about the ASP?

I have been aware of ASP for several years, largely through my collaborations on silymarin with Dr. Nicholas Oberlies at the University of North Carolina at Greensboro, Greensboro, North Carolina. I have been thinking about going to the ASP meeting for the past couple of years. Now that our research project has matured, I think it is time to get our work in front of natural product researchers.

Why did you join ASP?

I joined ASP because I believe our work is ready for the ASP audience, and I think my research needs input from this field. As a virologist and cell biologist, I think the work we have been doing on how natural products like silymarin engage mammalian cells to provide cytoprotection might be well received. I also think we have applied novel biological and “omics” tools to understand the interaction between natural products and cells. As a highly collaborative scientist, I also think ASP membership might lead to new and exciting interactions.

Do you belong to any other scientific societies?

I am a lifetime member of the American Society for Virology. I am also a long-standing member of the American Association for the Study of Liver Diseases (AASLD) and the International Society of Interferon and Cytokine Research.

What are your current research interests in pharmacognosy?

My interests are to unravel the complexity by which natural products interact with mammalian cells to protect them from damage from viruses and chronic inflammation (among other causes). I am interested in applying systems biology to study cellular responses to natural products, defining the cellular targets to which natural products bind, and how binding confers biological activity. I would love to expand our studies that have been focused on silymarin and silymarin flavonolignans to other novel, bioactive compounds.

What is your scientific background?

I received my BS in Biology and PhD in Molecular Virology (both from McMaster University, Hamilton, Ontario, Canada), and have done post-doctoral training in the interferon (IFN) and hepatitis C



Dr. Polyak at the International Symposium on Hepatitis C Virus and Related Viruses, in Banff, Alberta, Canada, 2014. (Yes, there are two HCV virologists playing with the banquet band.)

virus (HCV) fields. Thus, my expertise is largely on virus-cell interactions. I have been studying HCV-host interactions for over 20 years with an emphasis on how this virus induces inflammation (pro-inflammatory cytokines and chemokines) and, for over 8 years, how natural products target cells to limit virus infection and inflammation. Our work on silymarin has been applied to human immunodeficiency virus (HIV), where we are studying how silymarin inhibits T cell activation, which is central to the inflammatory diseases that many HIV positive patients experience despite a viral load controlled by anti-retroviral therapy. The ways in which silymarin inhibits cellular inflammation are also applicable to other inflammatory diseases.

What would you like to achieve through your membership?

I would like critical feedback from the ASP membership. I would like to explore opportunities for new collaborations directed at defining universal biological mechanisms of action of

natural products.

What do you like doing in your spare time?

Born and raised in Canada, I played competitive hockey while growing up. As an aging athlete, I still play in a couple of men's beer leagues in the Seattle, Washington, area, and I am known as a solid defenseman. To keep up with the younger players and surpass my peers, I also train a couple of times per week at a friend's gym, where I partake in crossfit-like workouts. I have been bike commuting several times per week for four years. I also enjoy playing guitar, singing, and writing songs (see photo). I like to communicate and visit with my college-aged daughters, travel, attend theater, cook, and consume the end products of fermented botanicals.

What are you currently reading?

I am presently reading “The Drunken Botanist” by Amy Stewart. I am not kidding. This was a 50th birthday gift from a friend. I am sure most ASP members know this, but the book is an interesting collection of facts and vignettes about the many, many botanicals that are fermented.

What is your favorite organism to study, or for general interest?

Viruses and mammalian cells are my favorite organisms. Do I have to pick one? ■