

PFAS 2024 Abstract Submission

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Abstract Title: *Studying PFAS Interactions with Proteins using Equilibrium Dialysis: Do's and Do Nots*

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Authors: Jennifer McAdams, Youn J. Choi, Supratik Kar, Linda S. Lee, Tyler D. Hoskins, Maria S. Sepúlveda

Approval for abstract on website: yes

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TITLE: Studying PFAS Interactions with Proteins using Equilibrium Dialysis: Do's and Do Nots

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Per and polyfluorinated alkyl substances are highly proteinophilic and their interactions with proteins are critical drivers of bioaccumulation and toxicity. Therefore, studying the interactions of PFAS with proteins is essential in studies that seek to understand toxicokinetics and toxicodynamic of this large group of chemicals. Equilibrium dialysis (ED) is a widely used separative method for the characterization of protein-PFAS binding. The technique consists on determining a steady state between two chambers one containing the protein with no PFAS and a second one containing PFAS, separated by a semi-permeable membrane which does not allow PFAS-protein complexes to cross. The objective of our work is to use novel approaches for studying PFAS mixtures. Here, we report on ED experiments performed to test the affinity of PFOS and human hemoglobin. After following manufacturer's instructions, we observed significant loss of PFOS in our culture system due to non-specific binding. After adjusting several parameters such as length of incubation, we report on ideal conditions to decrease non-specific PFAS binding in future experiments.

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