

**CHARACTERIZATION OF PROTEIN ADDUCTION OF NITROGEN MUSTARD
CHEMICAL WARFARE AGENTS TO MODEL PEPTIDES.** Vanessa Thompson,

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Covalent adduction of electrophilic xenobiotics to nucleophilic residues on biological proteins can serve as biomarkers of exposure to past, long-term, or cumulative exposure to compounds of interest. These biomarkers can serve as indicators of exposure long after urinary metabolites and/or parent compounds have been excreted from the body. The aim of this work was to characterize adduction of the Schedule I chemical warfare agents HN-2 and HN-3 to model peptides containing nucleophilic residues found on proteins. Specific experiments performed assessed the chemical structure of adducts formed, kinetics of adduct formation, and stability of adducts formed at physiological conditions. The results of this study indicate that covalent adduction occurs on nucleophilic residues not previously published in literature. These alternative binding sites may provide insight into unique biomarkers of exposure to extend the window of detection to these chemical warfare agents.