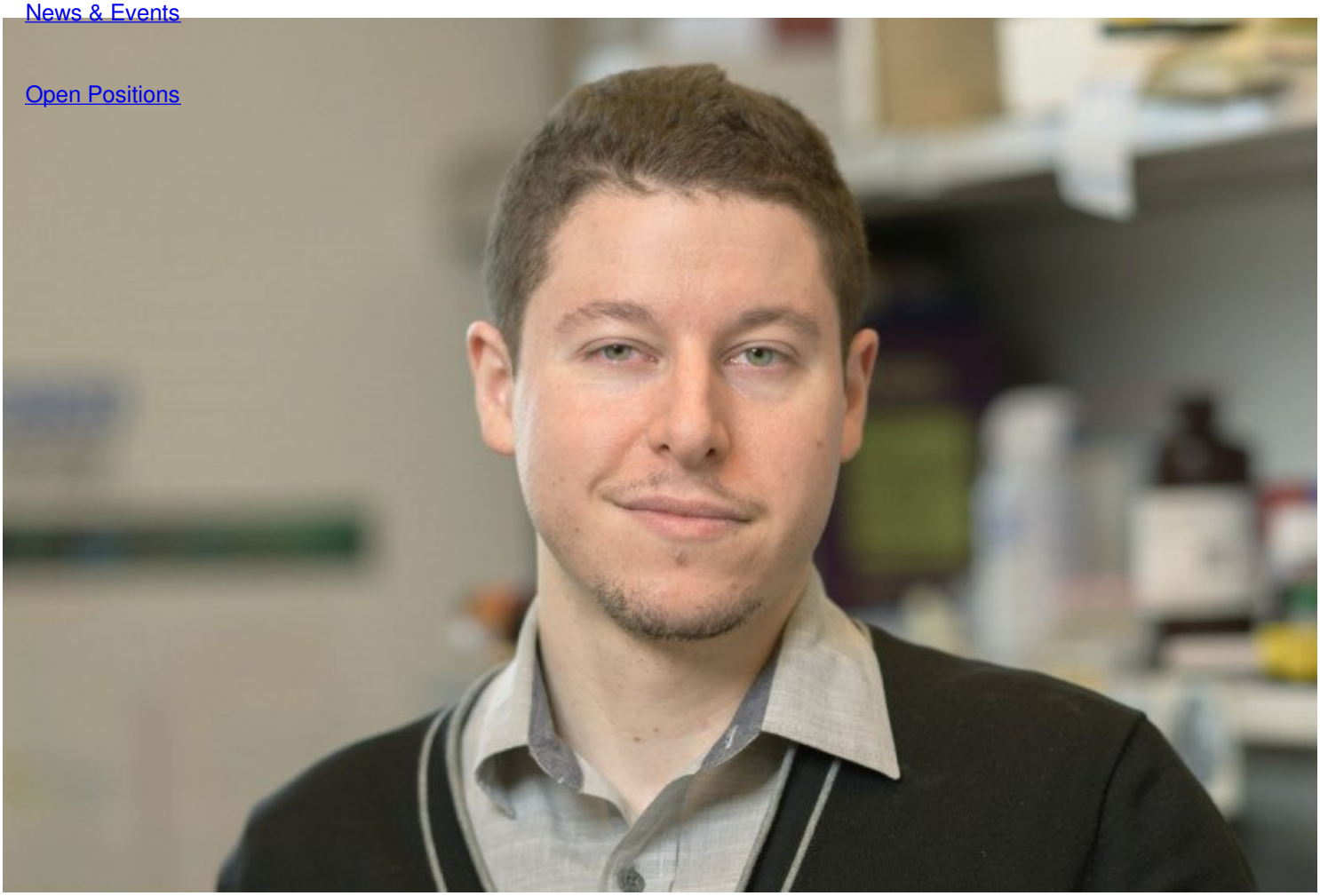
Memorial Sloan Kettering Cancer Center

Christopher Horoszko, PhD

Consultant



Project(s)

I am a cross-disciplinary pharmacologist broadly interested in redox phenomena and oxidation-related biological stresses. Most unsaturated lipids are key targets of oxidative damage and can mediate stress signaling and cell death through direct reaction (radical attack, enzyme activity) or indirect surface-acting (surfactant) and ligand effects. I study a highly conserved oxidized-phospholipid ‘disposal’ enzyme we found expressed across many malignant cell lines; this enzyme sub-family was initially characterized using a MEF model of oncogene-induced oxidative stress. The only small molecule antagonist/inhibitor drugs developed for this enzyme failed efficacy in Phase III studies of cardiovascular and neurodegenerative disease patients. We are re-positioning this drug for oncology using mechanism of action-based cytotoxic synergism. Downstream events that control enzyme expression are of interest given atypical tissue- and nutrient-associated expression. Lipids play an active role in carcinogenesis; I investigate the relationship between lipid oxidation and oncogenic proliferation based on the recent emergence of non-genotoxic drug candidate classes that act on lipid metabolism. I collaborate with colleagues in biophysics and engineering to take advantage of novel optics methods, infrared imaging modalities, and nano-sensors. More recently, in collaboration with a lipid nanoparticle (LNP) formulation scientist, I am dissecting the impact of particle lipids on target cells and tissues; in particular, a payload (RNA) potency effect.

Links

LinkedIn

Google Scholar

(CV)

Prior to this position, Dr. Horoszko worked in labs studying the metabolomics of proliferation, nutrient uptake, and neurodegenerative proteins; nanomaterial characterization and in vitro biosensor design; and hormone neuropharmacology/endocrinology using molecular histology techniques on animal brain tissue.

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