

Abstract Submitted
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Tethering Peptides to Functionalized Self-Assembled Monolayers on Gold Through Two Chemical Linkers Using the Huisgen Cycloaddition¹ IGNACIO GALLARDO, The University of Texas at Austin, LAUREN WEBB — A biocompatible platform has been made by tethering a helical peptide to a surface at two points. The presence of the peptide should be an ideal interface between inorganic substrates and proteins. The artificially synthesized alpha-helical peptide composed of alternating leucine and lysine residues, with two residues replaced with cyanophenylalanine to react with two neighboring surface-bound azide groups is linked to the azide-terminated self-assembled monolayer through a tetrazole made by a Huisgen Cycloaddition. Surface analysis is done with ellipsometry, infrared spectroscopy and x-ray photoelectron spectroscopy. The cycloaddition and reaction conditions are supported by similar reactions of other smaller molecules like Methoxybenzotrile and controls show no physisorption under our reaction conditions. Reaction yields from 80 to 98 percent are reported from the optimized reactions. The helical structure of the peptide in solution has been confirmed under our reaction conditions with circular dichroism and the peptide amide I and II modes studied by infrared spectroscopy and their comparison with a computational model of the peptide showed that the peptide is probably randomly oriented on the surface.

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