Amino acid interactions dependent on the polymerization of charged residues and surface properties of monolayers

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Supplementary Information

Peak separation analysis in S 2p region to evaluate the nanostructure of SAMs (Figure S1).

PYSA analysis of the Au electrodes for assessment of the work function of SAMs. (Figure S2).

Change in electrical potential per peptide unit on Au modified with the SAMs (Figure S3).

Change in electrical potential per monomer unit on Au modified with the SAMs (Figure S4).

Peak separation analysis in S 2p region to evaluate the nanostructure of SAMs

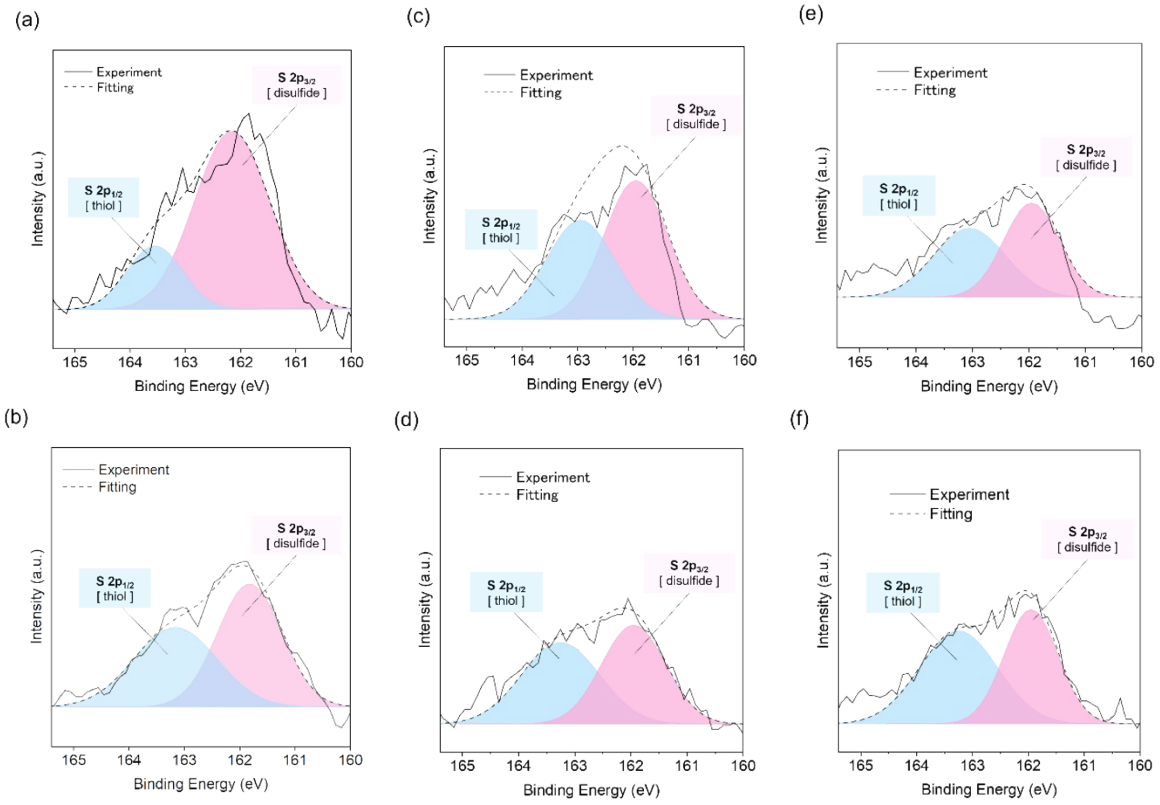

Fig. S1 XPS spectra in the S 2p region on 3-MPA-SAM (a), 2-AET-SAM (b), 4-MBA-SAM (c), 3-APT-SAM (d), 6-MHA-SAM (e), and 5-APT-SAM (f). The fitting and separation analyses for the obtained XPS peak were carried out on the Common Data Processing System (COMPRO) 12 software.

PYSA analysis of the Au electrodes for assessment of the work function of SAMs.

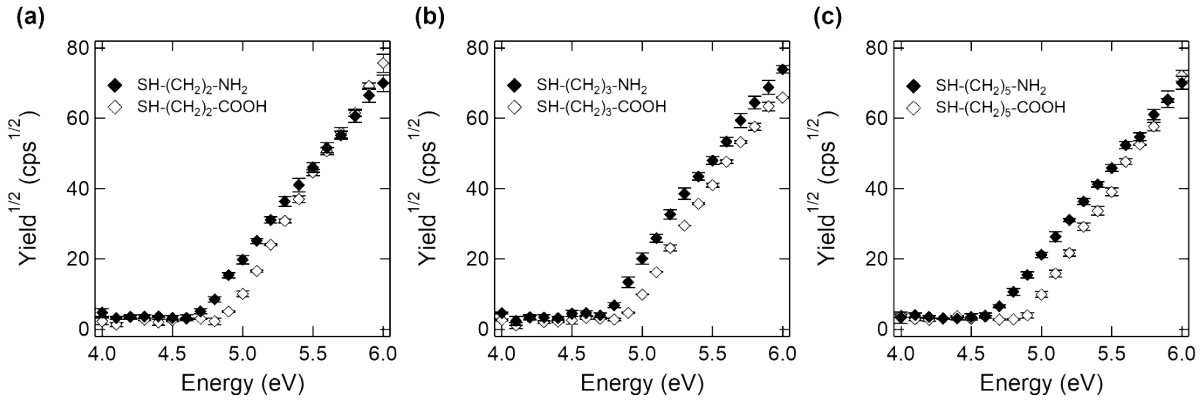

Fig. S2 Photoemission yield of the Au electrodes modified with the SAMs. The building blocks of SAMs are alkanethiols of alkyl length (a) 2, (b) 3, and (c) 5. Each SAM is terminated with a carboxy group (open symbol) or amino group (filled symbol). Error bars represent the standard errors of three measurements.

Change in electrical potential per peptide unit on Au modified with the SAMs.

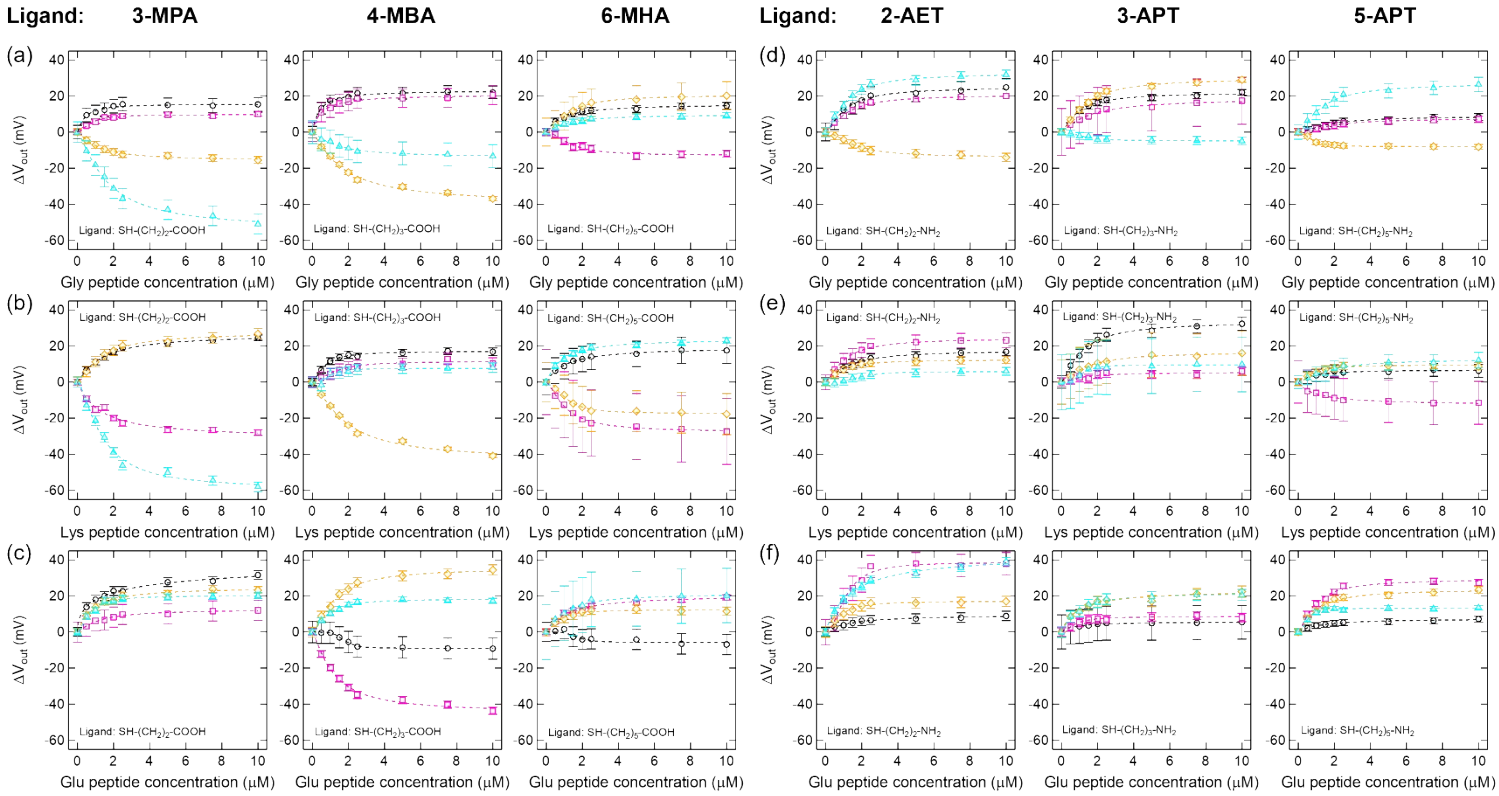

Fig. S3 Changes in the output voltage depending on analyte concentration of peptide unit. Analyte solutions contain 0-10 μM peptides of (a, d) Gly, (b, e) Lys, or (c, f) Glu, 10mM NaCl and 10 mM MOPS (pH 7.0). The SAMs are terminated with (a-c) mercaptocarboxylic acids or (d-f) aminoalkanethiols of the alkyl length 2 (left), 3 (middle) and 5 (right). Error bars represent the standard errors of 42 detection points.

Change in electrical potential per monomer unit on Au modified with the SAMs.

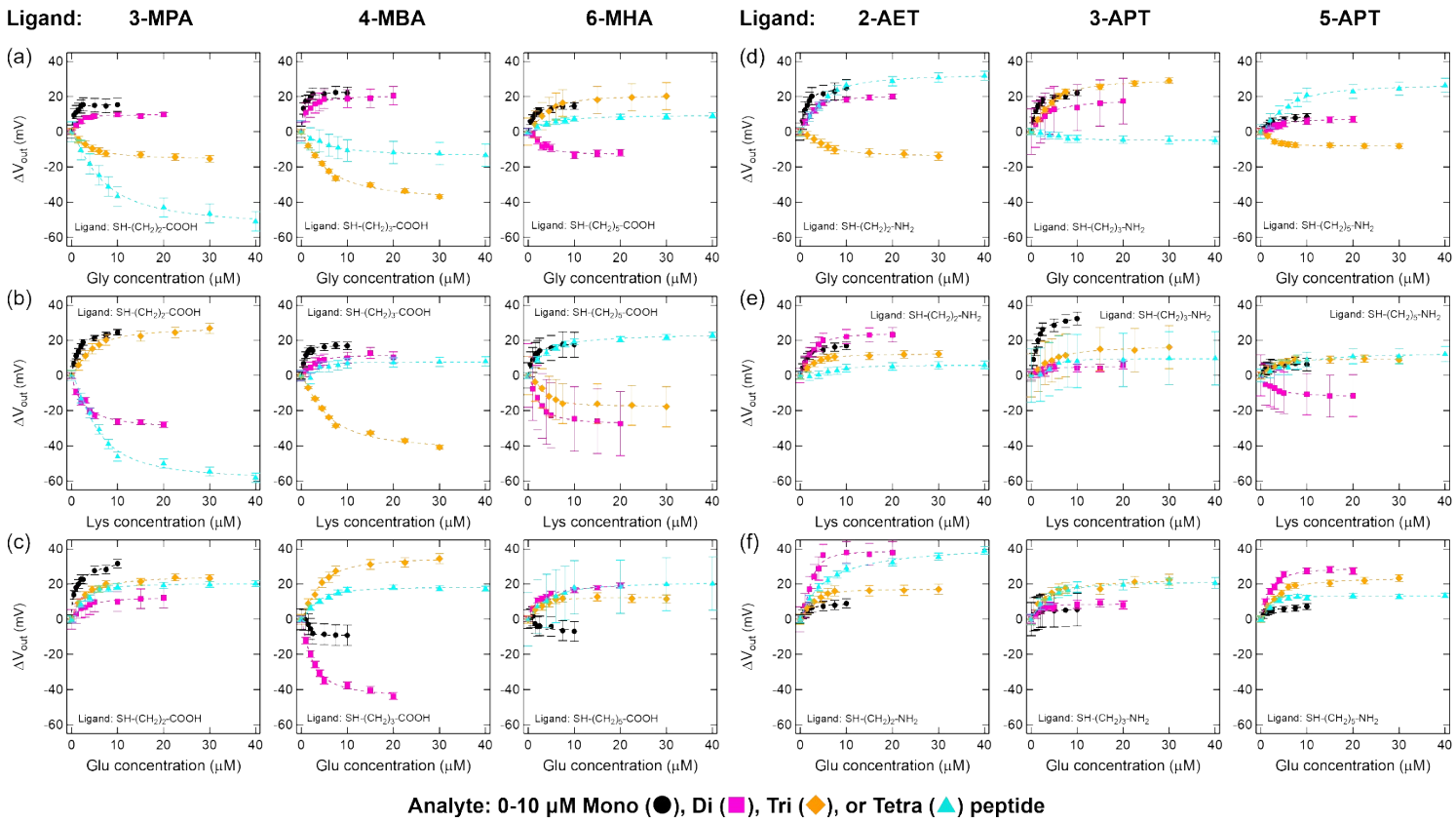

Fig. S4 Changes in the output voltage depending on analyte concentration of monomer unit. Analyte solutions contain 0-10 μM peptides of (a, d) Gly, (b, e) Lys, or (c, f) Glu, 10mM NaCl and 10 mM MOPS (pH 7.0). The SAMs are terminated with (a-c) mercaptocarboxylic acids or (d-f) aminoalkanethiols of the alkyl length 2 (left), 3 (middle) and 5 (right). Error bars represent the standard errors of 42 detection points.