#### Supplementary Material (ESI) for Nanoscale

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## Supporting Information For

# Surface Engineering on Mesoporous Silica Chips for Enriching Low Molecular Weight Phosphorylated Proteins

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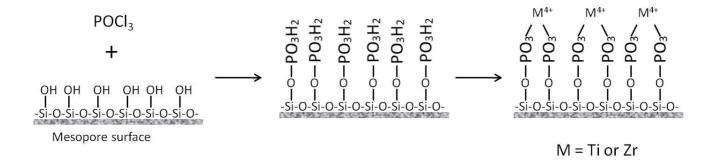


Figure S.1. Schematic representation of 2-step postsynthetic functionalization of mesoporous silica thin films with metal ion  $(Zr^{4+} \text{ or } Ti^{4+})$ .

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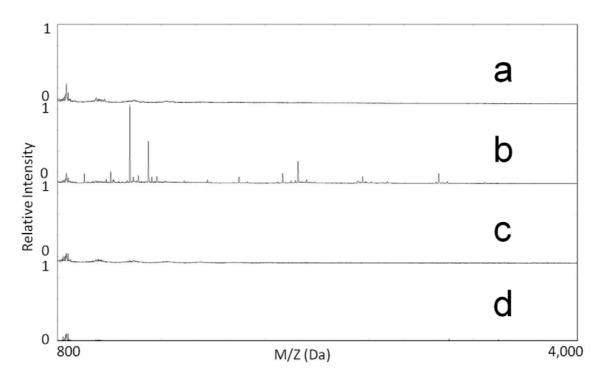


Figure S.2. MALDI TOF spectra of fractionated peptides processed by  $\mathrm{Ti}^{4+}$  immobilized chip from (a) raw  $\alpha$ -casein, (b) trypsinized  $\alpha$ -casein, (c) trypsinized  $\alpha$ -casein treated with phosphatase, and (d) raw  $\alpha$ -casein treated with phosphatase.

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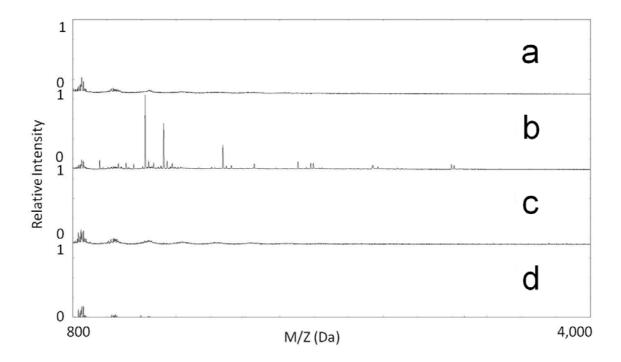


Figure S.3. MALDI TOF spectra of fractionated peptides processed by  $Ga^{3+}$  immobilized chip from (a) raw  $\alpha$ -casein, (b) trypsinized  $\alpha$ -casein, (c) trypsinized  $\alpha$ -casein treated with phosphatase, and (d) raw  $\alpha$ -casein treated with phosphatase.