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(54) Title: SWITCHABLE POLYPEPTIDE AND ITS USE FOR GENTLE AFFINITY PURIFICATION

(57) Abstract: The present invention relates to an affinity purification system comprising a polypeptide (protein) that binds selectively (e.g. specifically) and reversibly to its cognate peptide tag (ligand). In particular, the polypeptide comprises: (i) an amino acid sequence as set forth in SEQ ID NO: 1, wherein X at position 77 is selected from alanine, glycine, serine, asparagine, or threonine; (ii) a portion of (i) comprising an amino acid sequence as set forth in SEQ ID NO: 2, wherein X at position 56 is selected from alanine, glycine, serine, asparagine or threonine; (iii) an amino acid sequence with at least 80% sequence identity to a sequence as set forth in SEQ ID NO: 1, wherein the polypeptide comprises alanine, glycine, serine, asparagine or threonine at a position equivalent to position 77 of SEQ ID NO: 1, and wherein the polypeptide comprises histidine at positions equivalent to positions 30, 84 and 85 of SEQ ID NO: 1; or (iv) a portion of (iii) comprising an amino acid sequence with at least 80% sequence identity to a sequence as set forth in SEQ ID NO: 2, wherein the polypeptide comprises alanine, glycine, serine, asparagine or threonine at a position equivalent to position 56 of SEQ ID NO: 2, and wherein the polypeptide comprises histidine at positions equivalent to positions 9, 63 and 64 of SEQ ID NO: 2, wherein the polypeptide binds selectively and reversibly to a peptide comprising an amino acid sequence as set forth in SEQ ID NO: 3, 4 or 5.

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