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Technology factsheet

Technology ID
SO-14532/UL-01637

Title	**TagR, a new and versatile fusion protein tool to improve the solubility and facilitate the purification of recombinant proteins**
Activity sector	Biotechnology
Inventor(s)	Christian Salesse et Line Cantin, CUO-Recherche, Centre de recherche du CHU de Québec-Université Laval

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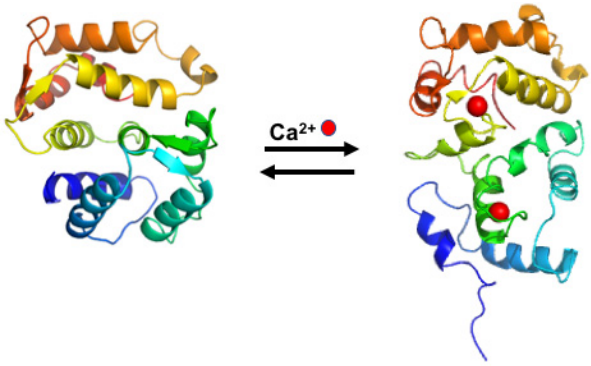
Markets	Production and purification of "difficult-to-solubilize" proteins (research, industrial, or therapeutic applications)
Unmet need(s)	Highly efficient protein solubilization/purification in the absence or presence of detergent
Solutions	A highly soluble protein tag enabling single-step purification of recombinant proteins
Description	TagR (recoverin) and 2XTagR are new protein tags that can be fused to recombinant proteins, to improve their solubility and facilitate their purification. Expressed at very high level in Escherichia coli (>30 mg/L of culture), TagR (and 2XTagR) can be purified very efficiently in a single elution step. Recoverin is known to undergo a conformational switch when it binds calcium (see the enclosed figure). In the calcium-free state, the hydrophobic residues of the N-terminus of recoverin are sequestered within a deep hydrophobic pocket but, upon calcium binding, they become available for binding to hydrophobic structures (membranes or chromatography resins). **After wash(es), *in situ* (in-column) protease treatment enables the release and elution of the highly purified recombinant protein.**



Calvez P, TF Schmidt, L Cantin, K Klinker, and C Salesse (2016). Phosphatidylserine allows observation of the calcium-myristoyl switch of recoverin and its preferential binding. J Am Chem Soc **138**: 13533-13540.

Desmeules P, S-É Penney, and C Salesse (2006). Single-step purification of myristoylated and nonmyristoylated recoverin and substrate dependence of myristoylation level. Anal Biochem **349**: 25-32.

Strengths	Versatile fusion protein tag, more efficient than widely used tags such as GST or MBP TagR increases both the solubility and purification of fused proteins
Opportunity	SOVAR and Université Laval seek a partner for co-development or commercialization of this technology
Intellectual property	Christian Salesse and Line Cantin (2017). Recoverin as a fusion protein tag to improve expression, solubility and purification of proteins. WO2017011909. Assignee: Université Laval

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