CTL CENTER FOR TECHNOLOGY LICENSING AT CORNELL UNIVERSITY

THE TECHNOLOGY

A high-yield system for expressing and purifying proteins, for use with proteins that are otherwise difficult or impossible to make in an active form, due to their low solubility or poor folding.

The system includes a vector into which the gene of interest is cloned, and a protease. The vector includes sequences for a small ubiquitin-like protein called SUMO, and a tag. After the gene of interest is cloned into the vector, and the vector is transfected into cells, a fusion protein is expressed that includes the protein of interest, SUMO, and the tag. SUMO's natural function is to chaperone proteins out of the cell, and to help them fold properly, and it carries out both those functions as part of the fusion protein. Secreted fusion proteins are purified using the tag. At this point, the protease, called Ulp1, is used. Ulp1 is naturally made and used by cells to cleave SUMO from the proteins that it chaperones. It is very fast, and very specific for SUMO – there is very accurate cleavage right at the point where the SUMO joins the protein, and no where else, so very little protein is wasted. In the system, the Ulp1 is a fragment that the inventor optimized to be as small (and therefore inexpensive) as possible while retaining its high specificity and speed.

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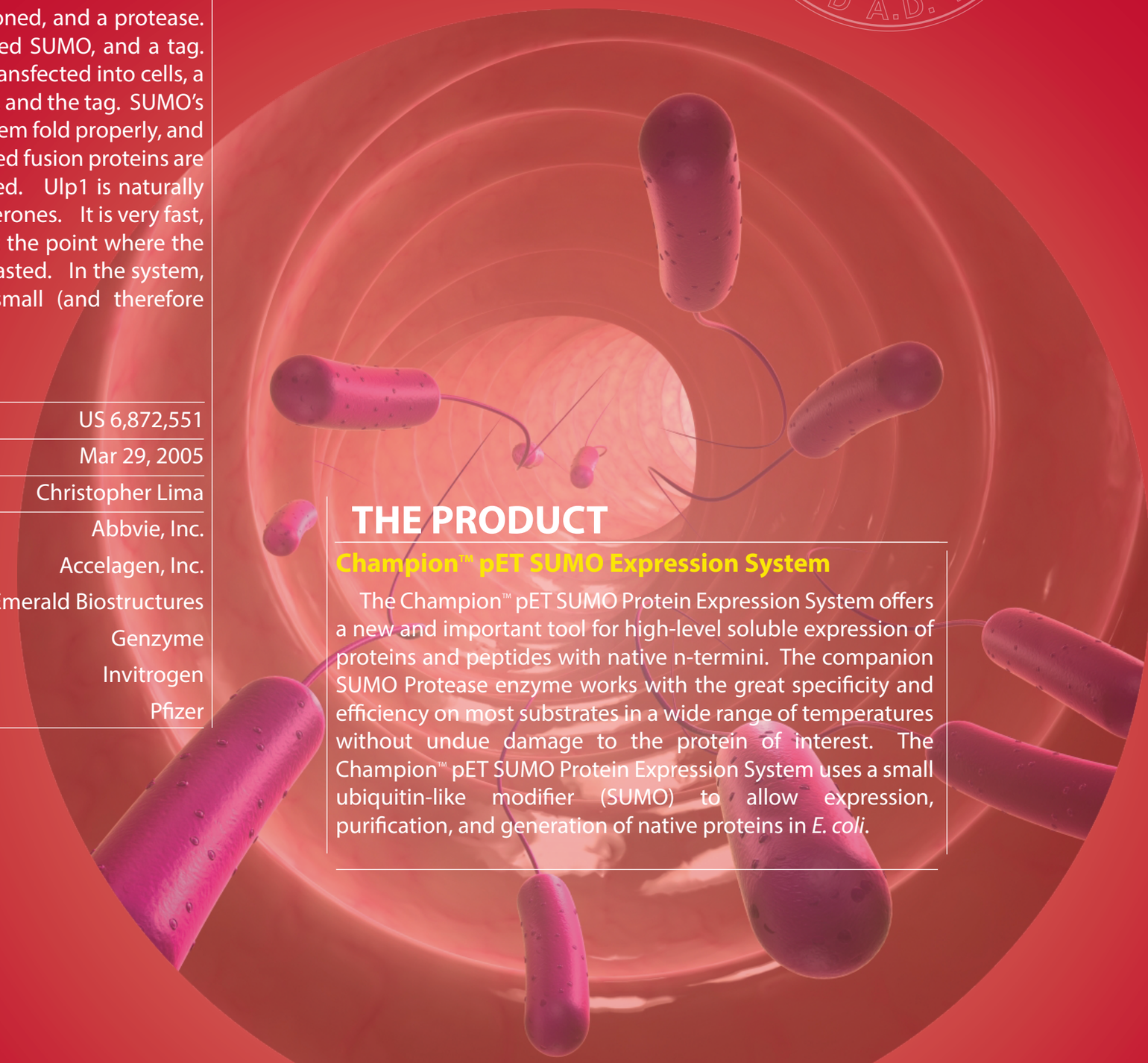
Inventor	Christopher Lima
Licensee	Abbvie, Inc.
	Accelagen, Inc.
	Emerald Biostructures
	Genzyme
	Invitrogen
	Pfizer



THE PRODUCT

Champion™ pET SUMO Expression System

The Champion™ pET SUMO Protein Expression System offers a new and important tool for high-level soluble expression of proteins and peptides with native n-termini. The companion SUMO Protease enzyme works with the great specificity and efficiency on most substrates in a wide range of temperatures without undue damage to the protein of interest. The Champion™ pET SUMO Protein Expression System uses a small ubiquitin-like modifier (SUMO) to allow expression, purification, and generation of native proteins in *E. coli*.