

## **Purification, crystallization and X-ray preliminary analysis of zebrafish Cystatin B**

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### **Abstract:**

The cystatin inhibitory activity is vital for regulating the normal physiological processes by restricting the potentially highly destructive activity of their target proteases such as the papain (C1) family, including cysteine cathepsins, and legumain (C13) families. Failures in biological mechanisms controlling protease activities cause in many diseases, such as neurodegeneration, osteoporosis, cardiovascular diseases, arthritis and cancer. Cystatins are classified into three types: type I, stefin without signal peptides (cystatins A and B); type II cystatins (C, D, E, F, S, SN and SA) and type III cystatins (kininogens). Cystatin B (CSTB) has been overexpressed, purified and crystallized using the hanging-drop vapour-diffusion method at 18 °C. The X-ray diffraction data of CSTB crystals was collected at 2.5 Å resolution, and the crystal belonged to space group *C2*, with unit-cell parameters  $a = 145.62$ ,  $b = 81.15$ ,  $c = 84.95$  Å,  $\beta = 124.85^\circ$ . Preliminary analysis indicates the presence of eight CSTB molecules in the asymmetric unit with a solvent content of 49.4%.