

P032 Biochemical Analyses of Transglutaminase from *Streptomyces* sp.

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Transglutaminases (TGase) catalyse the formation of ϵ -(γ -glutamyl) lysine cross-links between the γ -carboxamide group of a peptide-bound glutamine and the ϵ -group of lysine residues. TGases are widely disseminated in nature. Though functionally related to eukaryotic TGases, microbial TGases shares little homology in either sequence or structure, suggesting they have arisen from an ancestral cysteine protease.

Microbial TGase is favoured for industrial use (over guinea pig liver TGase) and hence has been applied as a biocatalyst in many areas. Uses include the binding of meat or fish as well as for the production of gelled products, e.g. jelly, yoghurt and cheese. It also has great potential for use in the textiles industry for the modification of wool, increasing the garments appearance, shrink resistance and durability.

The genus *Streptoverticillium* and *Streptomyces* are known to be closely related. A number of micro-organisms relating to *Streptomyces mobaraensis* have been screened for TGase activity. Enzymes have been purified and characterised with respect to cross-linking ability and substrate specificity. Enzymes purified possessed slightly different characteristics in relation to enzymatic activity and pH dependency upon comparison with *Streptomyces mobaraense* TGase, which, upon further analysis may aid our understanding and applications of these enzymes.