

## 46. Sequence and Structural Analysis of Extracellular Matrix and Cell Adhesion Molecules

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Extracellular matrix proteins play important biological roles in cell development, cell growth, cell differentiation as well as maintaining a defined structure in multi-cellular organisms. Cell adhesion molecules are specialised transmembrane proteins that are responsible for cell-cell interactions and cell-matrix interactions. Among the extracellular matrix and cell adhesion molecules, we have studied two protein families: receptor protein tyrosine phosphatases (RPTPs) and small leucine-rich repeat proteoglycans (SLRPs). We have used several bioinformatics tools to identify internal relationships within each protein family. We have selected protein sequences of these two families from the Swiss-Prot/TrEMBL protein database. We have manually defined sequence fingerprints for the RPTP and SLRP families using the multiple sequence alignment tool, CINEMA. Fingerprint analysis of the sequences show internal correlations that are not currently defined by annotation data. We used these correlations to obtain a better classification system for these two families.