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Gelation of mucin: Protecting the stomach from autodigestion

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In this talk I will describe the molecular mechanisms involved in the remarkable ability of the mucus lining of the stomach for protecting the stomach from being digested by the acidic gastric juices that it secretes. These physical properties can be attributed to the presence of a high molecular weight glycoprotein found in mucus, called mucin. Rheology and other measurements show that gastric mucin forms a gel under acidic pH. A model of gelation based on the interplay of hydrophobic and electrostatic interactions will be discussed. Molecular Dynamics simulation studies of folding and aggregation of mucin domains provide further support for this model. The relevance of gelation to the motion of the ulcer causing bacterium *H. pylori* will be discussed.