Jagged proteins are transmembrane ligands that bind to the Notch receptor to activate the Notch signaling pathway. They are named for their jagged appearance when viewed under an electron microscope. There are two Jagged proteins in mammals, Jagged1 and Jagged2, which share a similar protein structure with a large extracellular domain, a transmembrane domain, and a small intracellular domain.

Jagged proteins are expressed on the surface of cells in many tissues during development and in the adult organism. They play critical roles in the regulation of cell fate determination, differentiation, and proliferation. In particular, they are important for the development of many organ systems, including the nervous system, cardiovascular system, and immune system.

The interaction between Jagged proteins and the Notch receptor triggers a series of proteolytic cleavages that release the intracellular domain of the Notch receptor, which then translocates to the nucleus and activates the transcription of target genes. Jagged proteins are thought to activate the Notch signaling pathway in a different manner than the other Notch ligands, Delta-like proteins.

Dysregulation of Jagged proteins and the Notch signaling pathway has been implicated in a variety of human diseases, including cancer, cardiovascular disease, and neurodegenerative disorders. Therefore, understanding the structure and function of Jagged proteins is important for developing therapies to treat these diseases.