Calcium binding chaperones of the endoplasmic reticulum

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The endoplasmic reticulum is a major Ca^{2+} store of the cell that impacts many cellular processes within the cell. The endoplasmic reticulum has roles in lipid and sterol synthesis, protein folding, post-translational modification and secretion and these functions are affected by intraluminal endoplasmic reticulum Ca^{2+}. In the endoplasmic reticulum there are several Ca^{2+} buffering chaperones including calreticulin, Grp94, BiP and protein disulfide isomerase. Calreticulin is one of the major Ca^{2+} binding/buffering chaperons in the endoplasmic reticulum. The protein has a critical role in Ca^{2+} signalling in the endoplasmic reticulum lumen and this has significant impacts on many Ca^{2+}-dependent pathways including control of transcription during embryonic development. In addition to Ca^{2+} buffering the calreticulin plays important role in correct folding and quality control of newly synthesized glycoproteins.