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Background:

ER Stress response also known as unfolded protein response (UPR) is a cellular response related to the endoplasmic reticulum. It is a stress response that has been found to be conserved between all mammalian species, as well as yeast and worms. The UPR is activated in response to accumulation of unfolded proteins in the ER lumen which primarily happens because of two reasons: 1) initially to restore normal function of the cell by halting protein translation and activation of production of molecular chaperones involved in protein folding. 2) If the prior objective was not achieved within certain time then the Cells are terminated by apoptosis by process of ER associated degradation.

This map focuses on the ER stress response in mammals.

Method:

The map information was curated by reading journal article. Each of the map components including (molecules, reactions and phenotypes) were first collected and then organized with all its required annotations. Then the assimilated knowledge was drawn as process diagram using Cell Designer Tool. The map was completed with most of the known knowledge about ER stress. The Process diagram was then converted into SBGN process diagram in Cell Designer. The map had to be rearranged/aligned and cleaned up after export into SBGN as 4.1 or 4.0 version of Cell Designer slightly distorts some of the interactions. The SBGN maps were then exported into different formats including PNG, JPEG, SVG.

Result: 77 connecting arcs (modifiers)