

Signaling at the ER-PM Junctions

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Specificity and fidelity of cell signaling is achieved by assembling signaling protein complexes at membrane contact sites (MCSs) that are formed between the ER and all other cellular membranes. MCSs are formed by tether proteins that are commonly anchored at the ER, have domains that span the space between the ER and the target membranes and motifs at the end of the spanning domains that interact with the target membranes. At the plasma membrane, MCSs formed between the ER and the plasma membrane (PM) are the ER/PM junctions. The identity and role in cell signaling of the tethers forming the ER/PM junctions are not well understood. Also not understood is whether ER/PM junctions formed by several tether proteins iate the same or different physiological functions. This presentation will discuss the function of ER/PM junction tethers in assembling Ca^{2+} and cAMP signaling complexes at the junctions and in mediating synergy in Ca^{2+} /cAMP signaling to control the function of ion channels and transporters.