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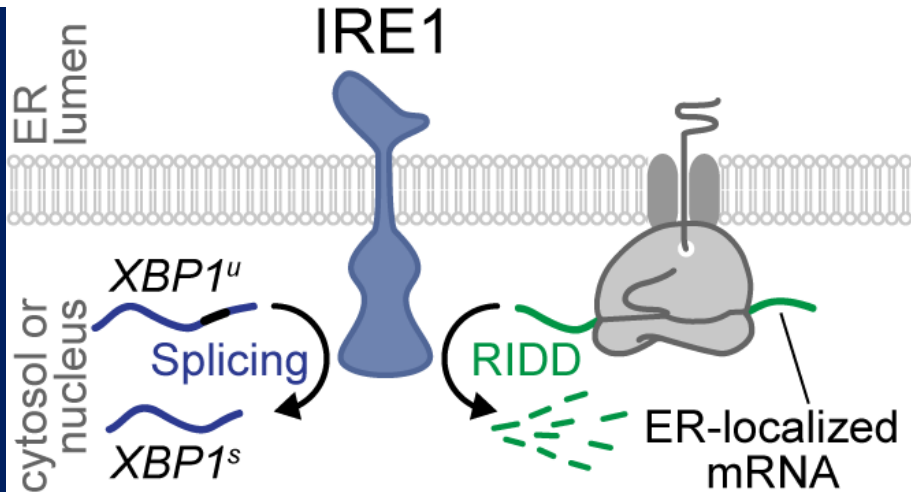
My lab's RNA focus:

- Our lab studies IRE1, an endoplasmic reticulum (ER) protein that acts as a sensor during cellular stress.
- When stressed, IRE1 cleaves specific mRNAs in the cytosol, a unique and critical function.
- We focus on this IRE1-mediated mRNA downregulation in aging and metabolic diseases.

Main methodologies:

- Model organisms: yeast, worm, and polarized mammalian cells
- ER stress methods: chemical/genetic approaches to induce protein misfolding & lipid stress
- Fluorescence microscopy: visualize ER dynamics, IRE1 activation, stress markers, and mRNA
- Subcellular fractionations –microsomes
- qPCR, bulk & single-cell RNA-seq
- Fatty acid analysis (gas chromatography) for lipid stress monitoring



Collaboration potential:

- Unravel IRE1's role in aging/diseases linked to ER stress (neurodegeneration, diabetes, etc.) using genetics, biochemistry, or downstream functional studies
- Genetic screens to identify IRE1 mRNA targets relevant to ER stress-linked diseases
- Development of novel IRE1 activity modulators for therapeutic applications

ThibaultLab