Pancreatic beta cells are lost in diabetes; finding ways to stem beta cell death and regenerate new beta cells are the primary goals of the Alonso lab. Beta cells are very sensitive to small changes in ambient glucose concentration. We have identified the Endoplasmic Reticulum stress response system as a key mediator of important beta cell outcomes of glucose exposure. This talk will outline our newest findings on pathways modulating the beta cell ER stress tipping point, in which cell fate decisions are made between cell death, survival and proliferation that influence whether an individual is protected against- or at risk for- developing diabetes.