

Our laboratory studies proteins that recognize misfolded and otherwise defective RNAs. By studying a bacterial ortholog of one such protein, the ring-shaped Ro60 autoantigen, we discovered that this protein is tethered by noncoding “Y RNA” to a ring-shaped nuclease, forming a double-ringed ribonucleoprotein machine specialized for structured RNA degradation. We have also shown that some bacterial Y RNAs are a new class of tRNA mimicks. Our studies are now aimed at identifying additional roles for Ro60 and Y RNA in both human cells and bacteria. We are also examining the ways in which other pathways that degrade defective and unneeded RNAs affect bacterial and mammalian cell function.