Genetic link to neurodegenerative diseases found

Researchers from the Jackson Laboratory say they have pinpointed a mechanism behind neurodegeneration in mice, one that involves a defect in transfer RNA (tRNA). Their study ("Ribosome stalling induced by mutation of a CNS-specific tRNA causes neurodegeneration") in *Science* reports that a mutation in a gene that produces tRNAs operating only in the central nervous system results in a stalling or pausing of the protein production process in the neuronal ribosomes. When another protein the researchers identified, GTPBP2, is also missing, neurodegeneration results.

"Our study demonstrates that individual tRNA genes can be tissue-specifically expressed in vertebrates," said Susan Ackerman, Ph.D., from the Jackson Lab and a Howard Hughes Investigator. "Mutations in such genes may cause disease or modify other phenotypes. This is a new area to look for disease mechanisms."

Neurodegeneration is poorly understood, yet it underlies major human diseases such as Alzheimer's disease, Parkinson's disease, Huntington's disease and ALS (amyotrophic lateral sclerosis, also known as Lou Gehrig's disease). While the causes of neurodegeneration are still coming to light, there is mounting evidence that neurons are exquisitely sensitive—much more so than other types of cells—to disruptions in how proteins are made and how they fold.

Read the full, original story: New mechanism behind neurodegeneration discovered