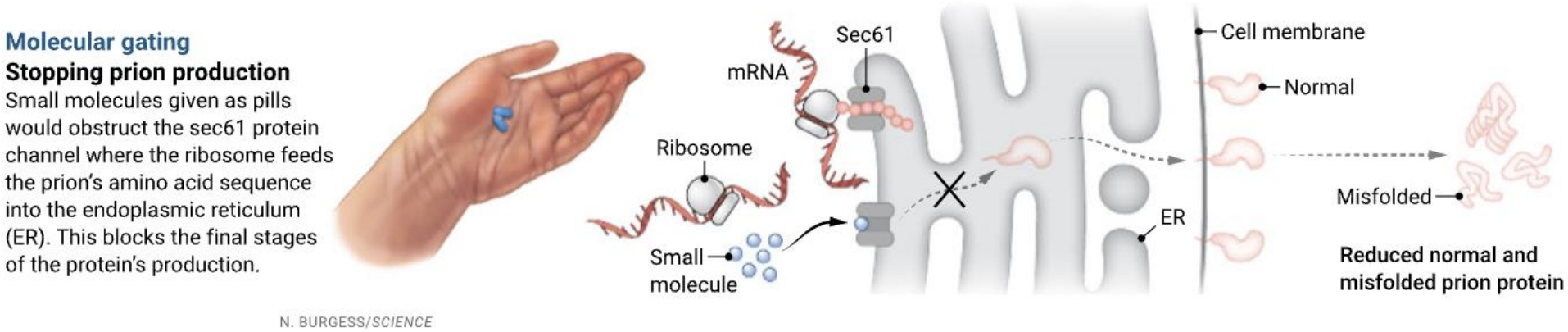
Assessing efficacy of a PrP-lowering Molecular Gate as a therapeutic for prion disease

Nina Oberbeck, VP Translational Sciences, Gate Bioscience



- **The platform**: Gate Bioscience is developing Molecular Gates - a new class of oral small-molecule drugs that block harmful proteins from leaving the cell, sending them to be degraded instead.
- **Prion approach**: Our drug lowers prion protein in the brain - the substrate misfolded prion needs to multiply and spread - to prevent, slow, or potentially reverse the disease.
- **Early results**: In a mouse model of prion disease, one of our lead compounds reduced brain prion protein by 80% after a week of daily dosing and significantly extended survival.
- **Next step**: With CJDF grant support and in collaboration with the Vallabh Minikel lab at the Broad Institute, we are formulating the compound into animal chow (food) to enable continuous, long-term dosing.
- **Open questions we'll answer**: How much additional survival benefit comes from lowering prion protein by *more* than 50%, and how late in disease treatment can still work.
- **What this means for patients**: Unlike prion-lowering drugs that require repeat spinal injections, our Molecular Gate could be a pill picked up at the pharmacy and taken from the medicine cabinet at home. This could make long-term treatment realistic for both symptomatic patients and at-risk mutation carriers who may need to dose for decades.

GATE BIO

Meredith Wadman, "Can new drugs stop a deadly set of brain-eating diseases?" *Science* (AAAS), March 21, 2024.