Alzheimer's acts like prion disease
Misfolded proteins implicated in more neurological disorders

BY LAURA SANDERS

In some brain diseases such as Alzheimer's, distored proteins behave like infectious agents, spreading among brain cells and corrupting other proteins. New studies suggest that such processes should be classified among disorders caused by the infectious particles known as prions. Classic prion infections, such as Creutzfeldt-Jakob disease, are fatal. Some scientists hope that recasting Alzheimer's and other neurodegenerative disorders as prion diseases will help reveal ways to halt or prevent neuronal destruction. Yet others caution that this radical reclassification may unnecessarily evoke fear of contagion.

Mindful of public panic, researchers are quick to note that there is no evidence that Alzheimer's, Parkinson's and other neurodegenerative diseases can be transmitted through normal everyday contact. "There is not one iota of evidence whatsoever that infectivity can occur from one individual to another," says cell biologist and neuroscientist George Goedert, a neurobiologist at the University of Cambridge.

But scientists can't rule out a jump from person to person under special circumstances, such as when contaminated tissue makes its way into a healthy body via certain medical procedures. What's more, lab workers who handle brain tissue among tribal New Guineans through ritualistic cannibalism of brain tissue among tribal New Guineans.

The possible infectious nature of these diseases is "trying to redefine a scary word," she says. Others, such as Goedert, prefer to say these diseases are "prionlike." That's because, in some ways, the diseases are similar to classic prion diseases, as in their cell-to-cell spreading; in other ways, such as their lack of infectivity through everyday contact, "prionlike diseases differ. "I think one should not call Alzheimer's disease and Parkinson's disease at this point," he says. "But I think it's true that these neurodegenerative diseases are prionlike." Semantics aside, researchers agree that approaching these neurodegenerative diseases as disorders of protein folding and spreading may lead to insights on how to stop or prevent them, helping to provide therapies that are desperately needed and have proven elusive so far.

One approach borrows from the prion field, which is in its infancy, scientists are still wrangling over what to call these disorders. Within the discipline, everyone seems to have their own definition of what a prion disease is," says Giles. Some oppose expanding the definition of prion disease. "The word prion induces a lot of fear," says neurologist Valerie Sim of the University of Alberta in Edmonton, Canada. And an outsized public reaction could have consequences such as denials of surgeries for people with these disorders and shuttering of research labs, she says. This expanding umbrella of prion disease is "trying to redefine a scary word," she says. Others, such as Goedert, prefer to say these diseases are "prionlike." That's because, in some ways, the diseases are similar to classic prion diseases, as in their cell-to-cell spreading; in other ways, such as their lack of infectivity through everyday contact, "prionlike diseases differ. "I think one should not call Alzheimer's disease and Parkinson's disease at this point," he says. "But I think it's true that these neurodegenerative diseases are prionlike." Semantics aside, researchers agree that approaching these neurodegenerative diseases as disorders of protein folding and spreading may lead to insights on how to stop or prevent them, helping to provide therapies that are desperately needed and have proven elusive so far. Some oppose expanding the definition of prion disease. "The word prion induces a lot of fear," says neurologist Valerie Sim of the University of Alberta in Edmonton, Canada. And an outsized public reaction could have consequences such as denials of surgeries for people with these disorders and shuttering of research labs, she says. This expanding umbrella of prion disease is "trying to redefine a scary word," she says. Others, such as Goedert, prefer to say these diseases are "prionlike." That's because, in some ways, the diseases are similar to classic prion diseases, as in their cell-to-cell spreading; in other ways, such as their lack of infectivity through everyday contact, "prionlike diseases differ. "I think one should not call Alzheimer's disease and Parkinson's disease at this point," he says. "But I think it's true that these neurodegenerative diseases are prionlike." Semantics aside, researchers agree that approaching these neurodegenerative diseases as disorders of protein folding and spreading may lead to insights on how to stop or prevent them, helping to provide therapies that are desperately needed and have proven elusive so far. Some oppose expanding the definition of prion disease. "The word prion induces a lot of fear," says neurologist Valerie Sim of the University of Alberta in Edmonton, Canada. And an outsized public reaction could have consequences such as denials of surgeries for people with these disorders and shuttering of research labs, she says. This expanding umbrella of prion disease is "trying to redefine a scary word," she says. Others, such as Goedert, prefer to say these diseases are "prionlike." That's because, in some ways, the diseases are similar to classic prion diseases, as in their cell-to-cell spreading; in other ways, such as their lack of infectivity through everyday contact, "prionlike diseases differ. "I think one should not call Alzheimer's disease and Parkinson's disease at this point," he says. "But I think it's true that these neurodegenerative diseases are prionlike."