

PROVA NON ESTRATTA

23/11/2021

CHIARA MARIA GIUNA DE LUCA

Chiara Maria Giulia De Luca

**02\_CONCORSO PUBBLICO, PER TITOLI ED ESAMI, PER LA COPERTURA A TEMPO DETERMINATO, DELLA DURATA DI CINQUE ANNI PER N. 3 POSTI DI RICERCATORE SANITARIO, CAT. D, LIVELLO D SUPER DA ASSEGNAME ALLA UOC NEUROLOGIA 5 – NEUROPATHOLOGIA**

**PROVA 1**

1. Malattie da prioni: tecniche diagnostiche
  2. Per SPAM si intende:
    - a. l'invio non richiesto di messaggi di posta elettronica con fini commerciali o offensivi
    - b. un programma che permette di scrivere messaggi di posta elettronica
    - c. una truffa bancaria on line
  3. Leggere e tradurre
- 

## Biomarkers and diagnostic guidelines for sporadic Creutzfeldt-Jakob disease

Peter Hermann, Brian Appleby, Jean-Philippe Brandel, Byron Caughey, Steven Collins, Michael D Geschwind, Alison Green, Stephane Haik, Gabor G Kovacs, Anna Ladogana, Franc Llorens, Simon Mead, Noriyuki Nishida, Suvankar Pal, Piero Parchi, Maurizio Pocchiari, Katsuya Satoh, Gianluigi Zanusso, Inga Zerr

Sporadic Creutzfeldt-Jakob disease is a fatal neurodegenerative disease caused by misfolded prion proteins ( $\text{PrP}^{\text{Sc}}$ ). Effective therapeutics are currently not available and accurate diagnosis can be challenging. Clinical diagnostic criteria use a combination of characteristic neuropsychiatric symptoms, CSF proteins 14-3-3, MRI, and EEG. Supportive biomarkers, such as high CSF total tau, could aid the diagnostic process. However, discordant studies have led to controversies about the clinical value of some established surrogate biomarkers. Development and clinical application of disease-specific protein aggregation and amplification assays, such as real-time quaking induced conversion (RT-QuIC), have constituted major breakthroughs for the confident pre-mortem diagnosis of sporadic Creutzfeldt-Jakob disease. Updated criteria for the diagnosis of sporadic Creutzfeldt-Jakob disease, including application of RT-QuIC, should improve early clinical confirmation, surveillance, assessment of  $\text{PrP}^{\text{Sc}}$  seeding activity in different tissues, and trial monitoring. Moreover, emerging blood-based, prognostic, and potentially pre-symptomatic biomarker candidates are under investigation.

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### PROVA 2

1. Malattie da prioni: patogenesi

2. Il termine “Open Source” indica:

- a. un software i cui autori ne permettono e favoriscono il libero studio e l'apporto di modifiche da parte di altri programmati
- b. un software che può essere modificato da chiunque a patto di corrispondere all'autore una offerta libera
- c. un software protetto da diritti d'autore che non può essere modificato da nessuno tranne da chi ne detiene i diritti

3. Leggere e tradurre



International Journal of  
*Molecular Sciences*



Review

### Disentangling Mitochondria in Alzheimer's Disease

Ashu Johri

Feil Family Brain and Mind Research Institute, Weill Cornell Medicine, New York, NY 10065, USA;  
johri.ashu@gmail.com

**Abstract:** Alzheimer's disease (AD) is a major cause of dementia in older adults and is fast becoming a major societal and economic burden due to an increase in life expectancy. Age seems to be the major factor driving AD, and currently, only symptomatic treatments are available. AD has a complex etiology, although mitochondrial dysfunction, oxidative stress, inflammation, and metabolic abnormalities have been widely and deeply investigated as plausible mechanisms for its neuropathology. A $\beta$  plaques and hyperphosphorylated tau aggregates, along with cognitive deficits and behavioral problems, are the hallmarks of the disease. Restoration of mitochondrial bioenergetics, prevention of oxidative stress, and diet and exercise seem to be effective in reducing A $\beta$  and in ameliorating learning and memory problems. Many mitochondria-targeted antioxidants have been tested in AD and are currently in development. However, larger streamlined clinical studies are needed to provide hard evidence of benefits in AD. This review discusses the causative factors, as well as potential therapeutics employed in the treatment of AD.

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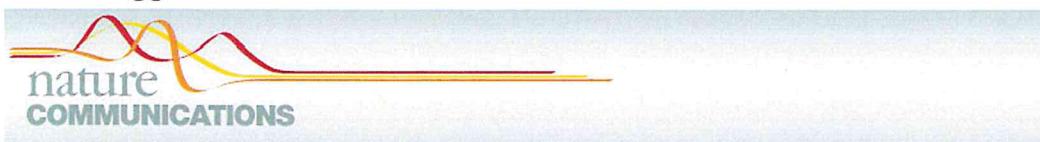
### PROVA 3

1. Modelli transgenici di malattia di Alzheimer

2. In informatica cosa si intende per bit?

- a. L'unità di misura elementare dell'informazione
- b. L'unità di misura della velocità di elaborazione di un computer
- c. L'unità di misura della capacità di calcolo della memoria

3. Leggere e tradurre



#### ARTICLE

Received 7 Aug 2014 | Accepted 10 Nov 2014 | Published 16 Dec 2014

DOI: 10.1038/ncomms6821

## Evidence for zoonotic potential of ovine scrapie prions

Hervé Cassard<sup>1,\*</sup>, Juan-Maria Torres<sup>2,\*</sup>, Caroline Lacroux<sup>1</sup>, Jean-Yves Douet<sup>1</sup>, Sylvie L. Benestad<sup>3</sup>, Frédéric Lantier<sup>4</sup>, Séverine Lugan<sup>1</sup>, Isabelle Lantier<sup>4</sup>, Pierrette Costes<sup>1</sup>, Naima Aron<sup>1</sup>, Fabienne Reine<sup>5</sup>, Laetitia Herzog<sup>5</sup>, Juan-Carlos Espinosa<sup>2</sup>, Vincent Beringue<sup>5</sup> & Olivier Andréoletti<sup>1</sup>

Although Bovine Spongiform Encephalopathy (BSE) is the cause of variant Creutzfeldt Jakob disease (vCJD) in humans, the zoonotic potential of scrapie prions remains unknown. Mice genetically engineered to overexpress the human prion protein (tgHu) have emerged as highly relevant models for gauging the capacity of prions to transmit to humans. These models can propagate human prions without any apparent transmission barrier and have been used to confirm the zoonotic ability of BSE. Here we show that a panel of sheep scrapie prions transmit to several tgHu mice models with an efficiency comparable to that of cattle BSE. The serial transmission of different scrapie isolates in these mice led to the propagation of prions that are phenotypically identical to those causing sporadic CJD (sCJD) in humans. These results demonstrate that scrapie prions have a zoonotic potential and raise new questions about the possible link between animal and human prions.