CSFQuIC

Optimisation, harmonisation and standardisation of the analysis of diseaseassociated prion protein in cerebrospinal fluid by real-time QuIC in the diagnosis of sporadic Creutzfeldt-Jakob disease

Project lifespan: 2012-2015

WHY?

Real-time Quaking Induced Conversion (RT-QuIC) is a recently developed technique that can detect the aggregation of abnormal mis-folded proteins. Scientific studies reported in 2011 and 2012 suggested that RT-QuIC could be used as a sensitive and specific diagnostic test for sporadic Creutzfeldt-Jakob disease (sCJD): a rare protein mis-folding disorder.

OBJECTIVE

CSFQuIC aimed to establish RT-QuIC in a number of European countries and ensure that the RT-QuIC technique was optimised and standardised. CSFQuIC also aimed to ensure that project results were harmonised throughout Europe as well as internationally, through the inclusion of countries such as Japan, Canada and Australia.

ACHIEVEMENTS

- CSFQuIC established RT-QuIC in three Italian laboratories (Rome, Milan and Bologna), one Belgium laboratory (Antwerp), one French laboratory (Paris) and one German laboratory (Munich). This involved training personnel and sending out reagent packs to each laboratory to help establish the technique.
- Tthe RT-QuIC technique was standardised and optimised in terms of methodology (e.g., amount of recombinant prion protein substrate required, shaking speed, temperature) and the criteria for a positive result established.
- Two ring-trials were undertaken to ensure the technique was harmonised between 11 international laboratories. The results: near-complete agreement between European and non-European labs. A RT-QuIC standardised protocol was established.
- Data regarding the diagnostic utility of CSF RT-QuIC for the diagnosis of sCJD was collected, and an international database for the collection of patient data to investigate clinical factors affecting the test sensitivity was created. CSF RT-QuIC's high degree of accuracy prompted EuroCJD European Surveillance consortium to add a positive CSF RT-QuIC to the clinical criteria for the diagnosis of sCJD.

PROJECT CONTACT

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This is a JPND-supported project.
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