Analytica Acta-2013

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference and Exhibition on
Analytical & Bioanalytical Techniques

October 15-17, 2013 Las Vegas, NV, USA

Use of streptomycin for the concentration and detection of the pathogenic prion protein in biological samples

Aly Moussa
National Agency for Sanitary Environmental, Work Security, Laboratory of Lyon, France

Abstract

Streptomycin, a known antibiotic of the class aminoglycoside revealed capable to form multimolecular aggregates with the pathogenic prion protein (PrPsc) allowing their precipitation and recovery by a low speed centrifugation step. The interaction between streptomycin and the PrPsc was evident after electrophoreses as the prion molecular mass increase for the three bands was proportional to the quantity of added streptomycin.

Also Dihydrostreptomycin in which the aldehyde group is reduced gave identical results as streptomycin ruled out the possibility of a Schiff-base reaction participating in the aggregation process. These 2 molecules as well as others like bis-3-aminopropylamine contain at least two guanidinium and/or ammonium groups participating in the aggregation process.

Amplifying potentialities of streptomycin was also recorded in the immunohistochemical (IHC) detection of the abnormal prion protein PrPsc especially in experimental early stages after infection.

These novel properties of streptomycin make it a useful substance that increases the sensitivity of the diagnostic techniques for prion infection in man & animals. At last, streptomycin was found to bind and aggregate the Alzheimer peptide P53 as it does with the prion protein.

Biography

Aly Moussa has obtained his BVSc from Cairo University, Egypt; Dr. Vet. Med. From Justus Liebig university, Germany and PhD from Claude Bernard University, France. He worked 4 years at IFFA-Mérieux Laboratory; Lyon- France, for 20 years was the chief of virology service at the French Bovine Pathology laboratory. Then for 8 years he was concerned at the national agency for sanitary security of aliments with research on the pathogenic prion proteins. He has published many papers in the fields of Virology and Transmissible Spongiform Encephalopathies.