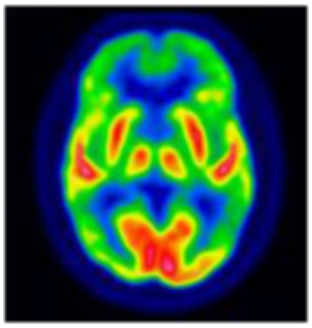
New family of alpha-synuclein ligands for synucleinopathies PET imaging

HEALTH
NEUROLOGY

CLINICAL DIAGNOSIS OF SYNUCLEINOPATHIES LIKE PARKINSON DISEASE

Parkinson's disease (PD), Multiple System Atrophy (MSA) and Dementia with Lewy Bodies (DLB) are devastating synucleinopathies. As of today, The deposition of filamentous insoluble protein inclusions termed Lewy bodies and Lewy neurites whose main constituent is aggregated into alpha-synuclein (α -syn) and characterizes synucleinopathies. PD diagnosis certainty is histological and can not be done during the lifetime of the patient. Diagnosis of PD is thus based on the existence of clinical signs. An early disease and stratification reliable diagnostic test is urgently needed !

Described here is a new family of chemical compounds that **highly bind to α–syn aggregates** and can be used to develop synucleinopathie imaging diagnosis tool and especially early detection of Parkinson disease.



Competitive Advantages

Development of highly specific ligands to α–synuclein :

- Numerous ligands and back-up available
- Optimized-synthetic chemistry
- ^{18}F ligands available and suitable for clinical trials
- High affinity to α–syn in a nanomolar range
- High specifity to α–syn against other aggregates likeTau or A-Beta

Development Status

Preclinical POC based on ^{18}F labelled molecules :

- Chemistry:
  - Design and synthesis of a huge library of small molecules
  - Conversion of the best candidates into F derivatives
  - Production of ^{18}F ligands
- α–syn binding studies:
  - *In vitro* testing on post-mortem human brain tissues
  - *In vivo* testing on rats and transgenic mice overexpressing form of human α–syn
- *In vivo* validation of BBB crossing
- Validation of chemical and plasma stability

Business Opportunities

Imaging / Early Detection / Companion diagnostic :

- ^{18}F labeled tracer for PET enabled synucleinopothies diagnostic
- Early detection of Parkinson Diseases
- Differential diagnosis of PD from other neurological lesions resulting from Tau or A-beta aggregates, e.g. Alzheimer
- Therapeutic follow-up /clinical monitoring for synucleinopathy drugs
- Synucleinopathies progression follow-up

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#Keywords

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Alpha synuclein
PET maging
Diagnostic

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Partnership

Co-development and/or licensing

Intellectual Property

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