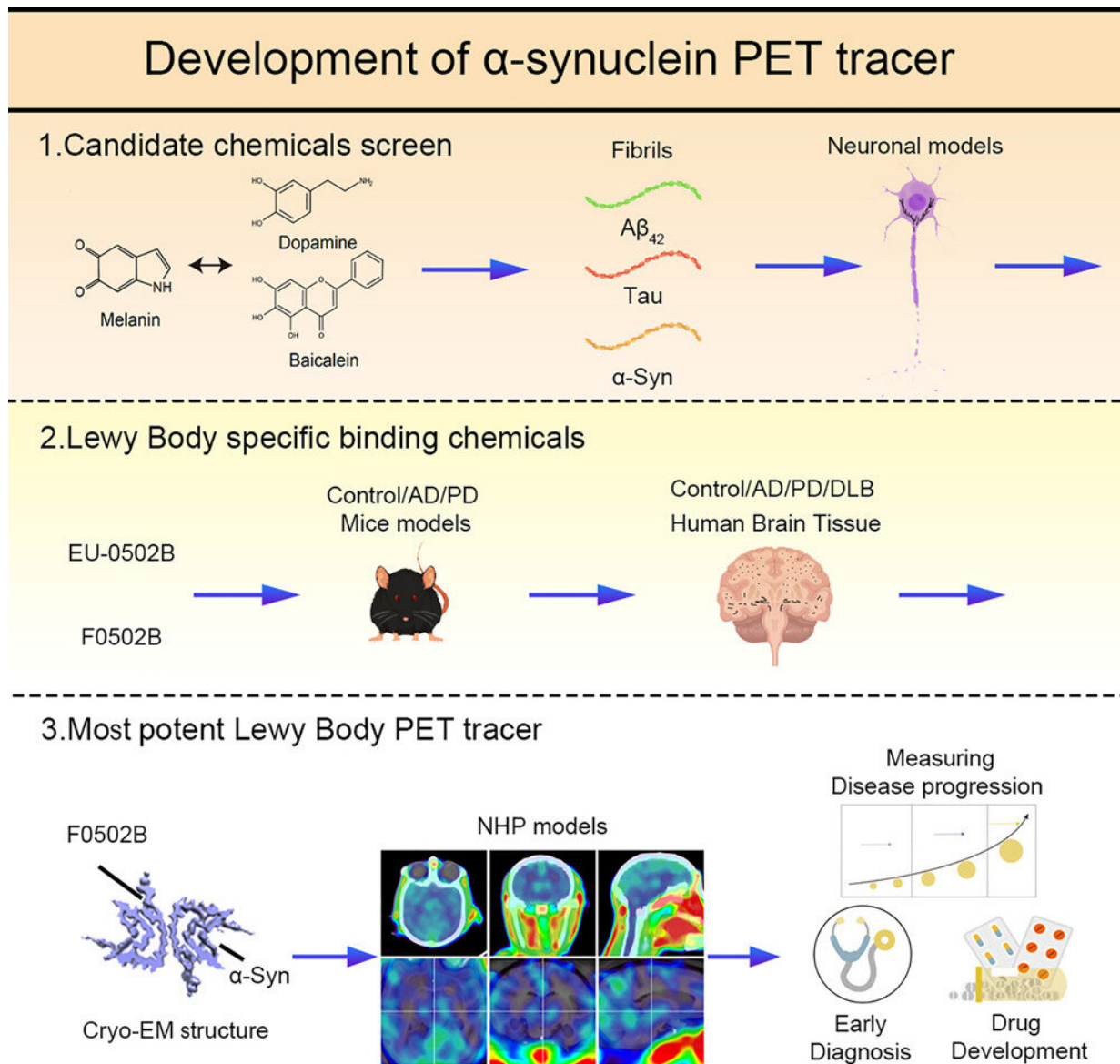


Novel positron emission tomography tracer visualizes synucleinopathies

July 10 2023, by Li Yuan



The discovery of F0502B represents a promising lead compound for imaging α -synuclein inclusions in synucleinopathies. Credit: Ye Keqiang

Brain imaging scans are powerful tools for diagnosing Parkinson's disease (PD) and ruling out other motor disorders. In PD, the presence of α -synuclein (α -Syn) in Lewy bodies and Lewy neurites in the brain, particularly the substantia nigra, distinguishes it from other parkinsonisms. Unfortunately, there is currently no effective α -Syn PET tracer available.

Now, a research team led by Prof. Ye Keqiang from the Shenzhen Institute of Advanced Technology (SIAT) of the Chinese Academy of Sciences has discovered a promising compound called F0502B for imaging α -Syn and aiding in the diagnosis of synucleinopathies. The study was published in *Cell* on July 7.

The researchers found that in monkey PD models, [^{18}F]-labeled F0502B specifically bound to α -Syn fibrils with high affinity, distinguishing them from $\text{A}\beta$ and Tau fibrils.

PET imaging in monkey models showed that [^{18}F]-F0502B specifically detected α -Syn aggregates. The levels of aggregated α -Syn may increase over time, leading to elevated PET-specific binding signals.

F0502B can act as neuroimaging radiotracer due to its certain chemical and pharmacological properties, including high permeability through the [blood-brain barrier](#), rapid clearance from normal [brain](#) tissue and blood, and high-affinity binding and selectivity for the target.

"Our findings demonstrate that F0502B acts as a specific PET tracer by selectively binding to aggregated α -Syn," said Prof. Ye, corresponding

author of the study. "This could enhance our understanding of disease progression and potentially facilitate monitoring therapeutic efficacy in clinical trials."

More information: Jie Xiang et al, Development of an α -synuclein positron emission tomography tracer for imaging synucleinopathies, *Cell* (2023). [DOI: 10.1016/j.cell.2023.06.004](https://doi.org/10.1016/j.cell.2023.06.004)

Provided by Chinese Academy of Sciences

Citation: Novel positron emission tomography tracer visualizes synucleinopathies (2023, July 10) retrieved 28 April 2024 from

<https://medicalxpress.com/news/2023-07-positron-emission-tomography-tracer-visualizes.html>

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