Functional neuroinflammatory- and serotonergic imaging in Alzheimer’s disease: validation and preliminary clinical findings
Josef Sudek (°1896 - †1976) was a famous Czechoslovakian photographer known for his lyrical images that show a fine eye for life’s intimate details. He once explained that ‘everything around us, dead or alive, in the eyes of a crazy photographer mysteriously takes on many variations, so that a seemingly dead object comes to life through light or by its surroundings… To capture some of this – I suppose that’s lyricism’. The cover photograph shows the work Untitled (1940) where in the surrounding of this PhD thesis one can depict stoned plaques and tangles.

The upper row represents the neuroinflammation part of this thesis where the first photograph shows an Alzheimer amyloid plaque (white) surrounded by reactive astrocytes (brown) and a cluster of microglial cells (black) sitting on top. Next to it, a three-dimensional model of the radioligand used in the present thesis PK11195 (either for PET or SPECT) is shown.

The lower row represents the serotonergic part of this thesis where the first picture shows a three-dimensional structure of the $5\text{-HT}_{2A}$ receptor. Next to it, a model of the SPECT radioligand R91150 is shown.

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PROEFSCHRIFT

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   2.2. Scintigraphic visualisation of inflammation in neurodegenerative disorders  

3. Cobalt as an inflammatory tracer in Alzheimer’s disease  
   - $^{57}$Co SPECT, $^{99m}$Tc-ECD SPECT, MRI, and neuropsychological testing in senile dementia of the Alzheimer type  

4. Development and validation of radiolabelled PK11195 for single photon emission computed tomography  
   - Biodistribution and dosimetry of $^{[123]}$iodo-PK 11195: a potential agent for SPET imaging of the peripheral benzodiazepine receptor  

5. Validation of radiolabelled PK11195 as an inflammatory tracer in Multiple Sclerosis  
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   7.1. Role of serotonin and serotonin type 2A receptors in Alzheimer’s disease  
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8. Summary, discussion and perspectives  

9. Samenvatting, discussie en toekomstperspectieven  

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12. Resume
We must trust to nothing but facts. These are presented to us by Nature, and cannot deceive. We ought, in every instance, to submit our reasoning to the test of experiment, and never to search for truth but by the natural road of experiment and observation.

Antoine Lavoisier (1743-1794)