

Master (level 2) traineeship proposal M2

Anti-viral activity of indocyanine green aggregates by photothermal effect

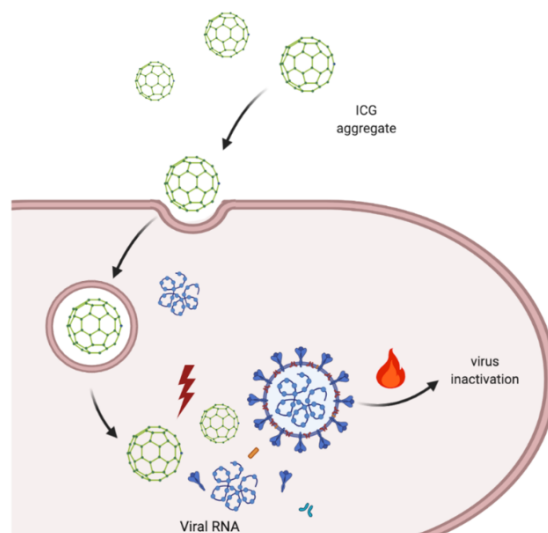
Traineeship period: January - July 2022

Laboratory : L2CM-UMR 7053 (Nancy, France)

Background:

The use of light in phototherapy is a future strategy for the treatment of many pathologies. Light irradiation offers the advantages of being directional, modular, and non-invasive for healthy tissues. In this context, we are interested in photo-active compounds and organic nanoparticles whose mode of action would be based on their targeted photothermal activity (PTT).

Objectives of the traineeship: The objective of the traineeship is the study of the antiviral properties of indocyanine green (alone or nanoformulated) on a respiratory virus (from the coronavirus family).



Methodology: The work will initially be dedicated to the production of viral particles and their titration. The cytotoxic effect of indocyanine green (ICG) and nanoaggregates on host cells will be evaluated in presence and absence of irradiation, followed by analysis of their antiviral effect (+/- PTT), and their impact on the different stages of the viral replication cycle. The methodological approach is based on cellular culture / virology / microscopy (fluorescence / electron), as well as analysis in molecular biology and biochemistry.

Candidate's profile: The candidate must have good knowledge and experience in virology / cell biology, and to demonstrate good experimental skills, autonomy and motivation.

How to apply: Applications should be sent to Mihayl Varbanov (mihay.varbanov@univ-lorraine.fr) and Andreea Pasc (andreea.pasc@univ-lorraine.fr) and must include a CV, a cover letter and the transcript of records of Masters and BSc grades.