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10:45 Oral communication session 2: “ion channels and cancer”

Organized by **Claire Legendre** (Angers, France)

VENOM PEPTIDES: EMERGENT BIOLOGICAL TOOLS FOR LUNG CANCER IMAGING.

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Many cancers, and the non-small cell lung cancer in particular, are associated with a disturbance of the mechanisms controlling ion homeostasis due, especially, to dysfunction and/or overexpression of many ion channels such as certain subtypes of sodium ($\text{NaV}_{1.7}$), potassium ($\text{KCa}_{3.1}$) channels, pH-sensitive channels (ASICs for acid sensing ion channels) or nicotinic acetylcholine receptors ($\text{nAChR}_{\alpha 7}$, $\text{nAChR}_{\alpha 9/\alpha 10}$). In particular, the activation of these ion channels plays an important role in cancer cell aggressiveness and tumor invasion, their overexpression seeming to be correlated with the appearance of metastases. Although imaging approaches (radiography, CT-scan for computed tomography scanning, PET-scan or positron emission tomography) are commonly used in the anatomical characterization of lung cancer, some of their limitations require the development of new imaging probes more specific of overexpressed molecular targets in lung adenocarcinomas. Peptide toxins, which have unique pharmacological properties, are well known to act selectively and with high affinity on certain overexpressed ion channels in cancer cells. Therefore, a promising solution towards the development of new lung cancer biomarkers appears to be the chemical synthesis of these toxins allowing them to be marked by “click” chemistry using various fluorescent or radioactive probes.