

Non-small cell lung cancer

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Propositions

“Non-small cell lung cancer: taking it down a NOTCH”

Venus Sosa Iglesias
Maastricht, July 3rd 2018 at 10h

1. There are different levels of heterogeneity in cancer patients which are driven by cancer stem cells, maintained by the NOTCH signaling pathway, that have been associated with chemo- and radiotherapy resistance (*this thesis*).
2. Our preclinical findings in non-small cell lung cancer and glioblastoma support further research on the delivery of a triplet modality approach: NOTCH inhibition plus chemoradiation, for drugs with different mechanisms of action, to improve tumor control and treatment efficacy (*this thesis*).
3. There is a great need to mimic clinical practice preclinically to improve translation by using relevant models, such as orthotopically growing human cancers, individualize radiation planning, and use image-guided small animal precision irradiators (*this thesis*).
4. Clinicians should aim for individualized treatments taking into account lung cancer histological subtype, NOTCH activity, and genomic signature. In order to improve efficacy and reduce toxicity, intermittent NOTCH inhibition scheduling, reduced dosing, and glucocorticoid treatment should be considered and treatments should be monitored with companion biomarkers to allow for therapeutic redesigning (*Valorization*).
5. “Cancer is like the common cold; there are so many different types. In the future we'll still have cancer, but we'll detect it very, very early, so that it won't kill anybody. We'll zap it at the molecular level decades before it grows into a tumor” (*Michio Kaku*).
6. “Evolution is ultimately why cancer is so deadly. Take two biopsies from different sides of a tumor, and they can be genetically very different, making it that much harder to fight. Variation is the toolbox of evolution, and this variation gives cancer strength” (*Kyle Hill*). “It is impossible to put together a single prescription that will cure all ailing bodies” (*Rabbi Moses Ben Maimon Maimonides*).
7. “Science means constantly walking a tightrope between blind faith and curiosity, between expertise and creativity, between bias and openness, between experience and epiphany, between ambition and passion, and between arrogance and conviction - in short, between an old today and a new tomorrow” (*Heinrich Rohrer*).
8. “Building goes on briskly at the therapeutic Tower of Babel; what one recommends another condemns, what one gives in large doses another dares to prescribe in small doses, and what one vaunts as a novelty another thinks not worth rescuing from merited oblivion. All is confusion, contradiction, inconceivable chaos. Every country, every place, almost every doctor, has their own pet remedies, without which they imagine their patients cannot be cured; and all these changes every year, aye every mouth” (*Medical Journal*).

9. “When you get into a tight place and everything goes against you till it seems as though you could not hang on a minute longer, never give up then, for that is just the place and time that the tide will turn” (*Harriet Beecher Stowe*). “Our greatest glory is not in never falling, but in rising every time we fall” (*Confucius*).
10. “To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science. If we knew what is was we were doing, it wouldn’t be called research, would it?” (*Albert Einstein*).
11. “No individual is alone responsible or a single stepping stone along the path of progress, and where the path is smooth, progress is most rapid” (*Murray Gell-Mann*). “There are no such things as incurables; there are only things for which man has not found a cure” (*Bernard Baruch*).