AARHUS UNIVERSITY

Press release

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Basic information

Name: Ann-Katrine Jakobsen Email: akj@clin.au.dk Phone: +45 23356461

Department of: Clinical Medicine

Main supervisor: Magnus Stougaard

Title of dissertation: Tyrosyl-DNA phosphodiesterase 1 as a target in the treatment of non-small cell lung cancer

Date for defence: Friday 12 November at (time of day): 15.00-17.00 Place: Meeting Room 2, Konferencecenteret, Studenternes Hus, Fredrik Nielsens Vej 2-4, 8000 Aarhus C and online via Zoom.

Press release (Danish)

PhD-forsvar: Målrettet behandling mod TDP1 i behandlingen af ikke-småcellet lungekræft

Topoisomerase 1 (TOP1) er et vigtigt enzym i replikationen af humane celler, hvilket udnyttes ved målrettet behandling mod TOP1 i behandlingen af forskellige typer af kræft. Ved en sådan kræftbehandling fanges TOP1 på det humane DNA og der induceres DNA-skader. Disse DNA-skader har potentialet til at slå kræftceller ihjel. Enzymet tyrosyl-DNA phosphodiesterase 1 (TDP1) kan dog fjerne TOP1 fanget på DNA og derved modvirke kræftbehandling med TOP1 lægemidler. Øget aktivitet af TDP1 kan derfor potentielt være grunden til, at nogle typer af kræft responderer dårligt på TOP1 lægemidler, hvilket f.eks. er tilfældet for ikke-småcellet lungekræft.

PhD-projektet undersøgte relevansen af at bruge målrettet behandling mod TDP1 til patienter med ikke-småcellet lungekræft i kombination med TOP1 lægemidler. Dette blev undersøgt ved at måle ændringen i TDP1 og TOP1 aktivitet og protein mellem normalvæv og kræftvæv i 150 patienter med ikke-småcellet lungekræft. Disse data blev desuden sammenholdt med relevante kliniske informationer om patienterne. For på sigt at kunne foretage målrettet behandling mod TDP1 blev forskellige ny-designede inhibitorer undersøgt for deres evne til at ramme TDP1. De inhibitorer der viste sig at ramme TDP1 blev derefter undersøgt for deres evne til at slå kræftceller ihjel ved kombineret behandling med et allerede klinisk anvendt lægemiddel, der specifikt rammer TOP1.

Forsvaret af PhD-projektet er offentligt og finder sted den 12. november kl. 13.00 i Meeting Room 2, Konferencecenteret, Studenternes Hus, Fredrik Nielsens Vej 2-4, 8000 Aarhus C and online via Zoom.
Titlen på projektet er ”Tyrosyl-DNA phosphodiesterase 1 as a target in the treatment of non-small cell lung cancer”.
Yderligere oplysninger: Ph.d.-studerende Ann-Katrine Jakobsen, e-mail: akj@clin.au.dk, tlf. 23356461.

Bedømmelsesudvalg:

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Press release (English)

PhD defence: Tyrosyl-DNA phosphodiesterase 1 as a target in the treatment of non-small cell lung cancer

Topoisomerase 1 (TOP1) is an enzyme used as a target in different types of anti-cancer treatment. TOP1 will be trapped on the DNA and thereby induce damages in the DNA. Such DNA damages can eventually kill cancer cells. However, the enzyme tyrosyl-DNA phosphodiesterase 1 (TDP1) has the ability to remove TOP1 trapped on DNA and thereby counteract this type of anti-cancer treatment. Increased activity of TDP1 might be the reason why some types of cancer respond poorely upon treatment with TOP1 drugs. This might be the case for non-small cell lung cancer.

The PhD project investigated the relevanse of using targeted treatment against TDP1 for patients with non-small cell lung cancer in combination with TOP1 drugs. This was investigated by measuring changes in TDP1 and TOP1 activity and protein between normal and cancer tissue in 150 patients with non-small cell lung cancer. These data were subsequently correlated to relevant clinical information. To be able to perform targeted treatment against TDP1, different newly-designed small molecular compounds were investigated for their ability to inhibit TDP1. The molecular compounds with the ability to inhibit TDP1 was then investigated for their ability to kill cancer cell when co-treating with an already clinical applied TOP1 drug.

The defence is public and takes place on 12th November at 3.00 p.m. in Meeting Room 2, Konferencecenteret, Studenternes Hus, Fredrik Nielsens Vej 2-4, 8000 Aarhus C and online via Zoom. The title of the project is Tyrosyl-DNA phosphodiesterase 1 as a target in the treatment of non-small cell lung cancer. For more information, please contact PhD student Ann-Katrine Jakobsen, email: akj@clin.au.dk, Phone +45 23356461.

Assessment committee:

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