

## Press release

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### Basic information

Name: Kristian Alsbjerg Skipper

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Department of: Biomedicine

Main supervisor: Thomas Corydon

Title of dissertation: Development of virus-derived gene and protein vehicles - Breaking new grounds for gene transfer and engineering of the genome

Date for defence: 24/5 at (time of day): 10.00 AM Place: 1162-013 (Fysiologisk auditorium)

Press release (Danish)

### Udvikling af nye genteknologiske værktøjer til gen overførsel og gen editering

Et nyt ph.d.-projekt fra Aarhus Universitet, Health bidrager til udviklingen af nye metoder til overførsel af genetisk materiale hvilket er afgørende både i genterapeutisk behandling af arvelige sygdomme samt i basale molekylærbiologiske studier. Projektet er gennemført af Kristian Alsbjerg Skipper, der forsvare det d. 24. maj 2019.

Genetisk behandling af arvelige sygdomme ved hjælp af genterapi har gennem de seneste to årtier vist sig som en effektiv, kurativ behandlingsform for en lang række dødelige sygdomme. Med udviklingen af den revolutionerende CRISPR/Cas9 teknik er genterapien trådt ind i en ny tidsalder hvor den genetiske værktøjskasse er blevet yderligere udvidet med nye redskaber til specifikt at kunne ændre den sygdomsforårsagende genfejl. Sideløbende med denne udvikling spiller redskaber fra den samme værktøjskasse en central rolle i mange laboratorier hvor forskere i cellekulturer anvender redskaberne både i undersøgelsen af basale biologiske mekanismer samt i udviklingen af nye sygdomsmodeller. En af de helst store udfordringer i feltet er dog hvordan det genetiske materiale leveres til cellerne. I forbindelse med sit ph.d.-projekt har Kristian Alsbjerg Skipper udviklet nye redskaber til den genetiske værktøjskasse. Med et bredt fokus på en række forskellige metoder til at overføre genetisk materiale til cellen er det ikke alene lykkedes at optimere det såkaldte Sleeping Beauty transposon system, men også at kombinere tidligere udviklede metoder. Overordnet set bidrager projektet til vores viden omkring levering af genetisk materiale og åbner op for nye tilgange til at manipulere med genomet.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 24/5 2019 kl. 10.00 i fysiologisk auditorium (1162-013), Aarhus Universitet, Ole Worms Allé 4, Aarhus C. Titlen på projektet er "Development of virus-derived gene and protein vehicles - Breaking new grounds for gene transfer and engineering of the genome". Yderligere oplysninger: Ph.d.-studerende Kristian Alsbjerg Skipper, e-mail: [kas@biomed.au.dk](mailto:kas@biomed.au.dk), tlf. 28346115.

Bedømmelsesudvalg:

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Uffe Birk Jensen, Professor and consultant, MD, PhD (Chairman)  
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Press release (English)

## Development of new tools for gene delivery and genome engineering

A new PhD.-project from Aarhus University, HEALTH, contributes to the development of new tools for transferring genetic material, which is essential both in gene therapeutic treatment of inherited diseases and in basic research of molecular biological mechanisms. The project was carried out by Kristian Alsbjerg Skipper, who is defending his dissertation on May 24, 2019.

Genetic treatment of inherited diseases by gene therapy has over the last two decades been demonstrated as a powerful, curative treatment option for a wide range of deathly diseases. With the development of the revolutionary CRISPR/Cas9 system, gene therapy has entered a new era where the genetic toolbox has been further expanded with new tools for specific targeting and changing the disease-causing genetic defect. Tools from the same toolbox have, concurrently with this development, played a central role in many laboratories where researchers utilize these tools for investigating basic biological mechanisms and for the development of new disease models. One of the key challenges within the field is how to efficiently deliver the genetic cargo to the targeted cells. During his PhD project, Kristian Alsbjerg Skipper has developed new tools for the genetic toolbox. By focusing on a range of different methods for delivering genetic material to cells, he not only optimized the so-called Sleeping Beauty transposon system, but also succeeded in combining previously developed tools. Overall, the project contributes to our knowledge regarding the delivery of genetic cargo and furthermore facilitates new approaches for manipulating the genome.

The defence is public and takes place on 05/24 at 10.00 AM in Auditorium 1162-013, Aarhus University, Ole Worms Allé 4, Aarhus C. The title of the project is "Development of virus-derived gene and protein vehicles - Breaking new grounds for gene transfer and engineering of the genome". For more information, please contact PhD student Kristian Alsbjerg Skipper, email: kas@biomed.au.dk, Phone +45 2834 6115.

Assessment committee:

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