

Summer school 2022

**Towards Immunotherapy for
Medulloblastoma**

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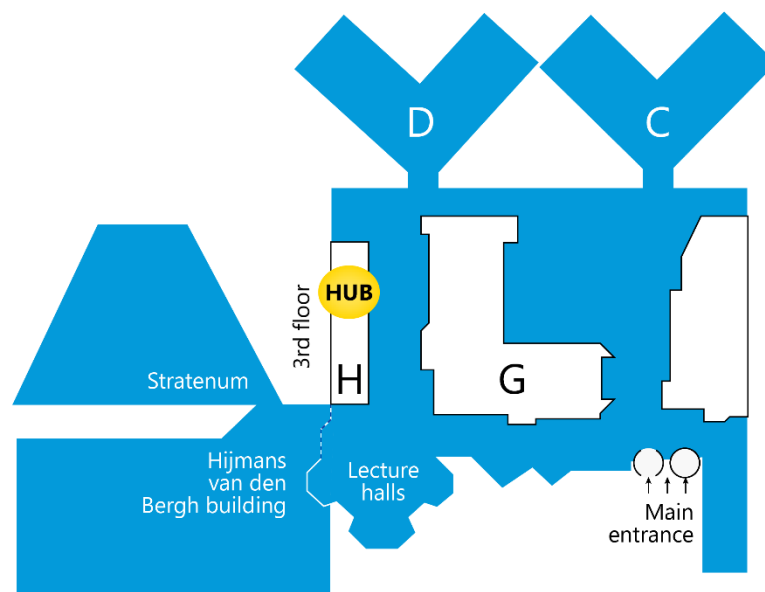
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Preface

Welcome to the Bachelor Research Hub Summer school, taking place in the newly equipped laboratory positioned in the heart of the University Medical Centre Utrecht. During the 2-week period you will be performing an authentic and real-world actual research under supervision of professionally trained teacher-researchers. You will experience a “crash-course” in the scientific world: from thinking about the topic, investigating the current literature, and writing a short project proposal, to conducting the experimental part of the research, and finally presenting and discussing your data. Sharing your findings and knowledge is always an important part of the research, therefore it is useful to get acquainted with it and practice it at the very start of your scientific careers.

The topic of the Summer school will revolve around medulloblastoma – one of the most common brain tumours in children. Currently, there are three therapeutical options for medulloblastoma: surgery, radiation and chemotherapy. Although survival rates vary from 70-85%, the quality of life of the patients is severely affected. Thus, there is a need for improved or new therapies. In recent years, immunotherapies have proven to be successful strategies in the treatment of cancer. During the course, you will investigate options for using immunotherapy as a future treatment for this disease by incorporating your own ideas and choosing your own research paths.

We wish to welcome you to our laboratory where, with a support of many supervisors, you can get a glimpse of the real scientific world. Happy researching!



Location: Bachelor Research Hub (H03.201), UMC Utrecht (Heidelberglaan 100, 3584 CX Utrecht)

With kind regards,

Niels Bovenschen, Toine ten Broeke, Sandra Crnko, Emma Pijnappel and Jan Meeldijk

Literature

The following articles and videos will give you an insight into the topic and techniques you will be using during the Summer school.

1. Medulloblastoma

Paul A. Northcott, Giles W. Robinson, Christian P. Kratz, Donald J. Mabbott, Scott L. Pomeroy, Steven C. Clifford, Stefan Rutkowski, David W. Ellison, David Malkin, Michael D. Taylor, Amar Gajjar & Stefan M. Pfister

Nature Reviews Disease Primers volume 5, Article number: 11 (2019)

<https://www.nature.com/articles/s41572-019-0063-6>

2. The blockade of immune checkpoints in cancer immunotherapy

Drew M. Pardoll

Nature Reviews Cancer volume 12, pages 252–264 (2012)

<https://www.nature.com/articles/nrc3239>

3. Immunotherapy in medulloblastoma: Current State of Research, Challenges, and Future Perspectives

Marije J. Voskamp, Shuang Li, Kim R. van Daalen, Sandra Crnko, Toine Ten Broeke, Niels Bovenschen

Cancers 13(21):5387 (2021)

<https://pubmed.ncbi.nlm.nih.gov/34771550/>

4. Bachelor Research Hub

<https://www.youtube.com/watch?v=PmBeLLvpXHw>

<https://www.bachelorresearchhub.com/>

5. Western blot tutorial

<https://www.youtube.com/watch?v=CEEekahiqMo>

6. Cell culture tutorial

<https://www.thermofisher.com/nl/en/home/references/gibco-cell-culture-basics/introduction-to-cell-culture.html>

7. Flow cytometry tutorial

<https://www.youtube.com/watch?v=sfWWxFLtpQ>

Schedule

Week July 4th-July 8th:

Monday:

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| 1. Gathering at the main entrance of UMC Utrecht | 08:55-09:00h | Everyone |
| 2. Introduction to the Summer school | 09:00-09:15h | N. Bovenschen |
| 3. Introduction of the topic | 09:15-10:00h | N. Bovenschen |
| 4. Hypothesis formulation, planning and preparations | 10:15-17:00h | Students |

Tuesday:

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| 1. Lab journal | 09:00-09:30h | T. ten Broeke/Crnko |
| 2. Discussion of the hypothesis and planned lab work | 09:30-10:00h | Everyone |
| 3. Lab work* | 10:15-17:00h | Students |

Wednesday:

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| 1. Lab work | 09:00-17:00h | Students |
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Thursday:

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| 1. Lab work | 09:00-17:00h | Students |
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Friday:

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| 1. Recap results (short ppt) + Planning for the next week | 09:00-09:45h | Everyone |
| 2. Lab work | 10:00-17:00h | Students |

**Lab work includes: molecular biology, cell culture, Western blot, Flow cytometry, etc*

Week July 11th-15th:**Monday:**

1. Lab work*	09:00-17:00h	Students
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Tuesday:

1. Lab work	09:00-17:00h	Students
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Wednesday:

1. Lab work	09:00-17:00h	Students
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Thursday:

1. Lab work	09:00-17:00h	Students
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Friday:

1. Presentation preparation	09:00-15:00h	Students
2. Final presentation (30min+discussion)	15:15-16:00h	Students
3. Closing remarks	16:00-17:00h	N. Bovenschen

**Lab work includes: molecular biology, cell culture, Western blot, Flow cytometry, etc*