Short Curriculum Vitae

2018-present **Pre-doctoral Research**
Ghent University, Belgium

2013-2018 **Master of Science in Biochemistry and Biotechnology**
University of Antwerp, Belgium

Research for master dissertation conducted at DKFZ, Germany

PhD dissertation published under embargo

In Memoriam: Prof. Dr. Pieter Van Vlierberghe

Pieter, you are immensely missed on this day. Thank you for giving me the opportunity to start my PhD in your research group and shaping me into the scientist I am today!

PV TEAM.

Special Acknowledgement

Cover art named 'The KMT2A-complex' was created by ebru artist and my godfather Jeroen Demoen. He represented leukemic cells by reinventing the traditional ebru technique called tiger eyes. He has developed an entire series of artworks on the topic of acute leukemia which are on display in the UZ and some will be auctioned for cancer research on the 4th of April.

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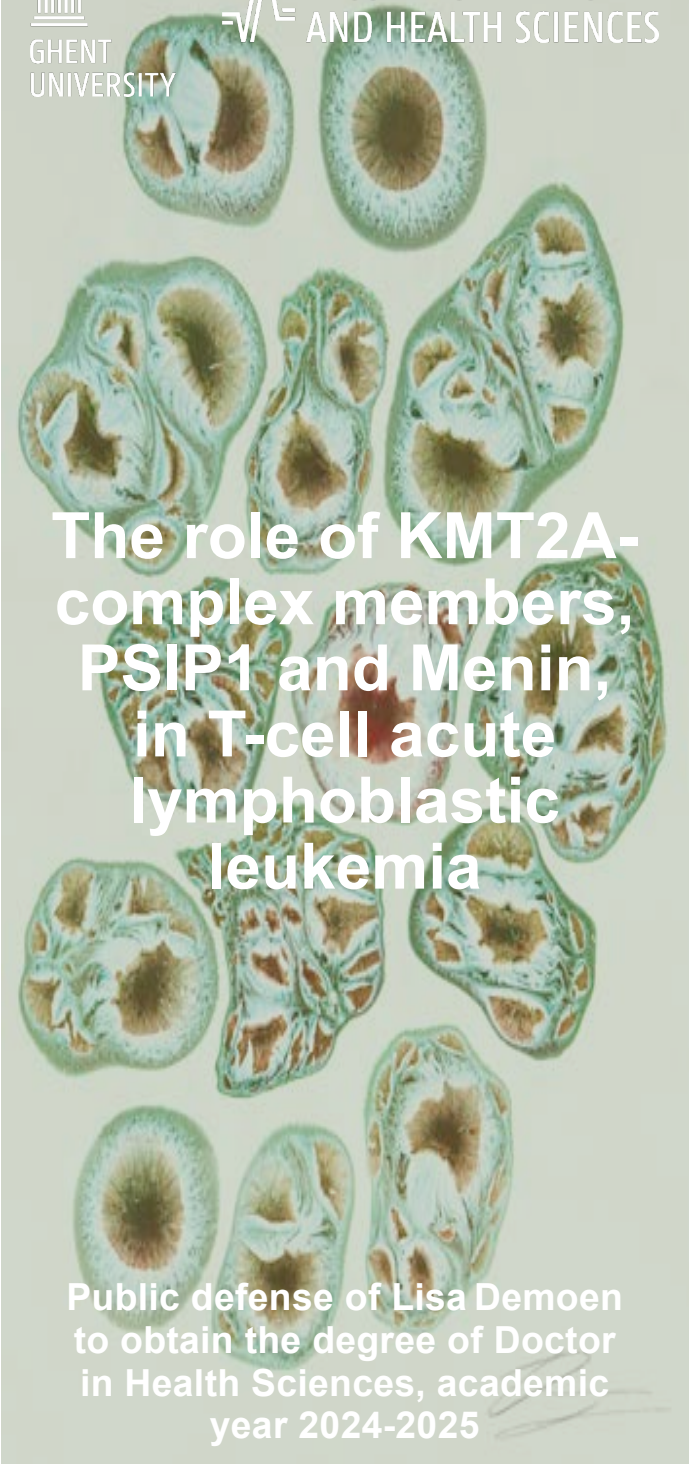


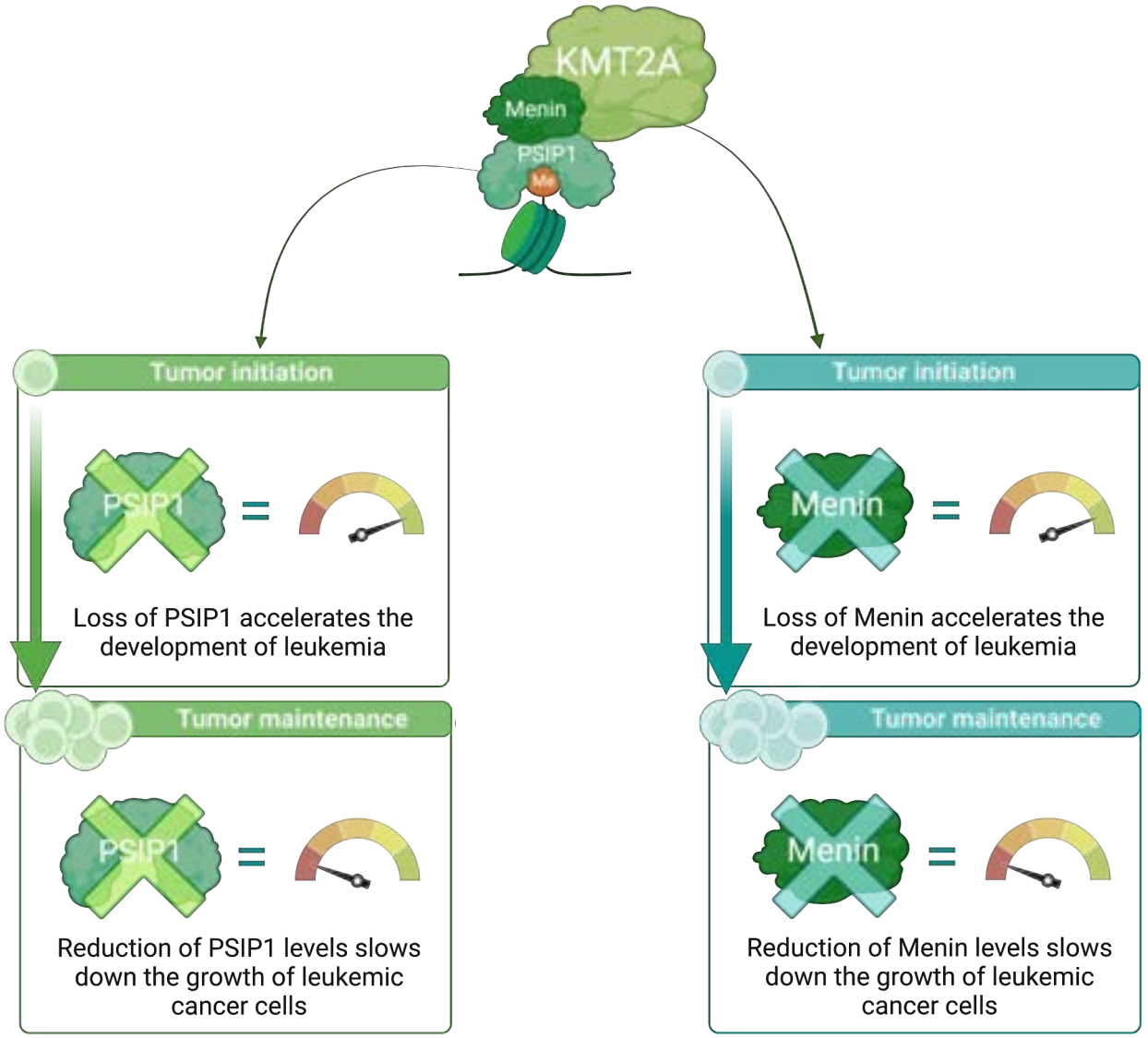
The role of KMT2A-complex members, PSIP1 and Menin, in T-cell acute lymphoblastic leukemia

Public defense of Lisa Demoen to obtain the degree of Doctor in Health Sciences, academic year 2024-2025

Summary

T-cell acute lymphoblastic leukemia (T-ALL) is an aggressive leukemia or blood cancer. Although it was formerly linked with a poor prognosis, the introduction of intensified chemo-therapy has significantly improved the cure rates. Unfortunately, the prognosis for individuals who do not respond to therapy or relapse remains dismal. Additionally, the medication currently used is not specific and in general targets fast-dividing cells, or thus cancer cells. However, this also harms normal healthy cells. As a result, patients experience both severe short-term, such as nausea, and long-term adverse effects, such as infertility. Therefore, there is a strong need to better understand how T-ALL works on a biological level, so that we can identify the key drivers of this cancer. This will then allow us to develop new therapies in the future, which selectively target the cancer cells.

My PhD research focused on the involvement of two KMT2A-complex members, PSIP1 and Menin, in T-ALL (**see figure**). In several types of leukemia, fusions of KMT2A (KMT2Ar) are detected. In such a fusion protein a part of the KMT2A protein is fused to another protein. Researchers have already shown that KMT2Ar AML, another kind of blood cancer, relies on KMT2A-complex members PSIP1 and Menin for cell growth. However, in T-ALL, their role was unknown and appeared to be less straight-forward. I noticed that removing PSIP1 or Menin expression while the malignancy is in its early stages, accelerates the development of T-ALL. However, if T-ALL is fully established, which is when most patients come to the clinic, the cancer cells divide more slowly if PSIP1 or Menin expression is reduced. This suggests that it could be interesting to target PSIP1 and Menin in T-ALL patients.



Publications out of this thesis

Demoen *et al.* A dual role for PSIP1/LEDGF in T-cell acute lymphoblastic leukemia. Science Advances 2024.

Demoen *et al.* The role of Menin in T-ALL. Manuscript in preparation.

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