University of Liège
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# Contribution to the Understanding of Chronic Infections and Immune Responses to Vaccines in Immunocompromised Individuals, Including People with HIV

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Science advances not only through the pursuit of knowledge, but also through the responsibility to protect the most vulnerable among us. Immunocompromised individuals face heightened risks from chronic infections and often respond suboptimally to vaccines, yet the health of any society is inseparably linked to the protection of its most fragile individuals. If they remain unprotected, none of us can truly be safe.

This thesis investigates these challenges at the intersection of virology, immunology, and public health. It explores the intrahost evolution of SARS-CoV-2 in persistent infections, the limitations of conventional diagnostic windows, and the diversity of viral reservoirs that fuel ongoing transmission and the emergence of variants. It further examines humoral and T-cell immune responses in immunocompromised individuals, with a particular focus on people with HIV, and extends these insights to the context of emerging threats such as monkeypox.

Beyond its scientific findings, this work carries a broader message: understanding and protecting those most at risk strengthens the collective resilience of humanity.