

Dr. Wendy Wobeser

Queen's University -

[Link to Queen's profile at http://deptmed.queensu.ca/faculty/wendy_wobeser](http://deptmed.queensu.ca/faculty/wendy_wobeser)

HDH Department - Infection & Immunology

Fields of Specialization: Medical management of chronic infections (HIV, TB, Hepatitis C), Clinical trials, Population based screening and interventions for HIV, TB and Hepatitis C, Infections affecting marginalized persons

Keywords: HIV treatment, TB epidemiology, Treatment toxicity, Prisons.

Research Story

Dr. Wendy Wobeser, Associate Professor of Medicine at Queen's University, has led and collaborated in a number of studies leading to scientific breakthroughs in AIDS and Hepatitis C management. She has been investigating novel interleukin families involved in the control of HIV. The HIV patients seen by Dr. Wobeser at Hotel Dieu Hospital have supported this research. In one study, Dr. Wobeser and her colleagues discovered that circulating HIV may suppress interleukin-27 (IL-27), a cytokine that has been identified as anti-HIV and may have therapeutic potential. Specifically, a negative association was found between HIV viral load and IL-27. Further, HIV patients co-infected with Hepatitis C (HCV) exhibited lower IL-27 levels than mono-infected HIV patients. Also, there is a positive association of IL-27 with moderate CD4 T cell counts in HIV patients.

These findings are the first to report how IL-27 is affected by HIV viral load, HCV co-infection and CD4 T cell counts. These associations impact the therapeutic potential of IL-27 for HIV patients. These factors will need to be considered in developing IL-27 as a therapeutic adjunct appropriately for individual patients. Ultimately, this will lead to an increase in life expectancy and quality of life outcomes for HIV patients, and evolve into potential cost savings to the health sector.

According to the Public Health Agency of Canada, there were approximately 71,300 individuals living with HIV (including AIDS) in 2011, a marked increase from 64,000 in 2008.² This growing number reflects the fact that the rate of new infections is greater than the rate of HIV-related deaths, as new treatments lengthen life expectancy.² In 2011 the estimated prevalence rate was 208.0 per 100,000 individuals², and the direct health care cost of treating an individual with a newly diagnosed HIV infection was estimated to be about \$250,000 over his or her lifetime.³ Further, 242,500 individuals in Canada are estimated to be currently infected with the Hepatitis C virus (HCV).¹ The direct and indirect cost of HCV in Canada was projected to have increased to \$1 billion annually by 2010.⁴

In the study described above, Dr. Wobeser collaborated with Dr. Christina Guzzo, Dr. Wilma M. Hopman, Dr. Nor Fazila Che Mat, and Dr. Katrina Gee, all researchers at Queen's University. Dr. Nor Fazila Che Mat

is also a researcher at the Universiti Sains Malaysia in Kelantan, Malaysia. Notably, Dr. Guzzo was awarded a Governor-General's Gold Medal Thesis Award in 2012 for her work in this study. The findings have been published by the authors as follows:

1. Guzzo, C., Hopman, W.M., Mat, N.F.C., Wobeser, W., Gee, K. Impact of HIV infection, highly active antiretroviral therapy, and hepatitis C coinfection on serum interleukin-27. *AIDS* 2010, 24:1371-1374. DOI:10.1097/QAD.0b013e3283391d2b
2. Guzzo, C., Hopman, W.M., Mat, N.F.C., Wobeser, W., Gee, K. IL-27-Induced Gene Expression Is Downregulated in HIV-Infected Subjects. *PLOS ONE*, September 2012, 7(9), e45706.

Dr. Wobeser concludes, "Working as a clinician scientist in the field of HIV has been tremendously rewarding. The involvement of the affected community in shaping the scientific agenda and supporting impressive advances serves as a model for other areas of medicine. I am looking forward to building a world class research program in the field of Hepatitis C with important collaborations with Street Health Kingston and HIV AIDS regional services as well as academic partners at Queen's. I appreciate the support from Hotel Dieu Hospital in making this a possibility."

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References

1. Public Health Agency of Canada. 2013. Hepatitis C Quick Facts. [The link is as follows: http://www.phac-aspc.gc.ca/hepc/index-eng.php](http://www.phac-aspc.gc.ca/hepc/index-eng.php)
2. Public Health Agency of Canada. 2011. Summary: Estimates of HIV prevalence and incidence in Canada, 2011. [The link is as follows: http://www.phac-aspc.gc.ca/aids-sida/publication/survreport/estimat2011-eng.php](http://www.phac-aspc.gc.ca/aids-sida/publication/survreport/estimat2011-eng.php)
3. Canadian Aids Society. 2011. The economic cost of HIV/AIDS in Canada. [The link is as follows: http://www.cdnaids.ca/files.nsf/pages/economiccostofhiv-aidsincanada/\\$file/Economic%20Cost%20of%20HIV-AIDS%20in%20Canada.pdf](http://www.cdnaids.ca/files.nsf/pages/economiccostofhiv-aidsincanada/$file/Economic%20Cost%20of%20HIV-AIDS%20in%20Canada.pdf)
4. Canadian Aids Society et al. 2005. Responding to the Epidemic: Recommendations for a Canadian Hepatitis C strategy. [The link is as follows: http://www.cdnaids.ca/files.nsf/pages/responding_e/\\$file/Responding_e.pdf](http://www.cdnaids.ca/files.nsf/pages/responding_e/$file/Responding_e.pdf)