



The Impact of hepatitis C virus (HCV) clearance on markers of immune aging and inflammation among women living with and without HIV over time.

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Background

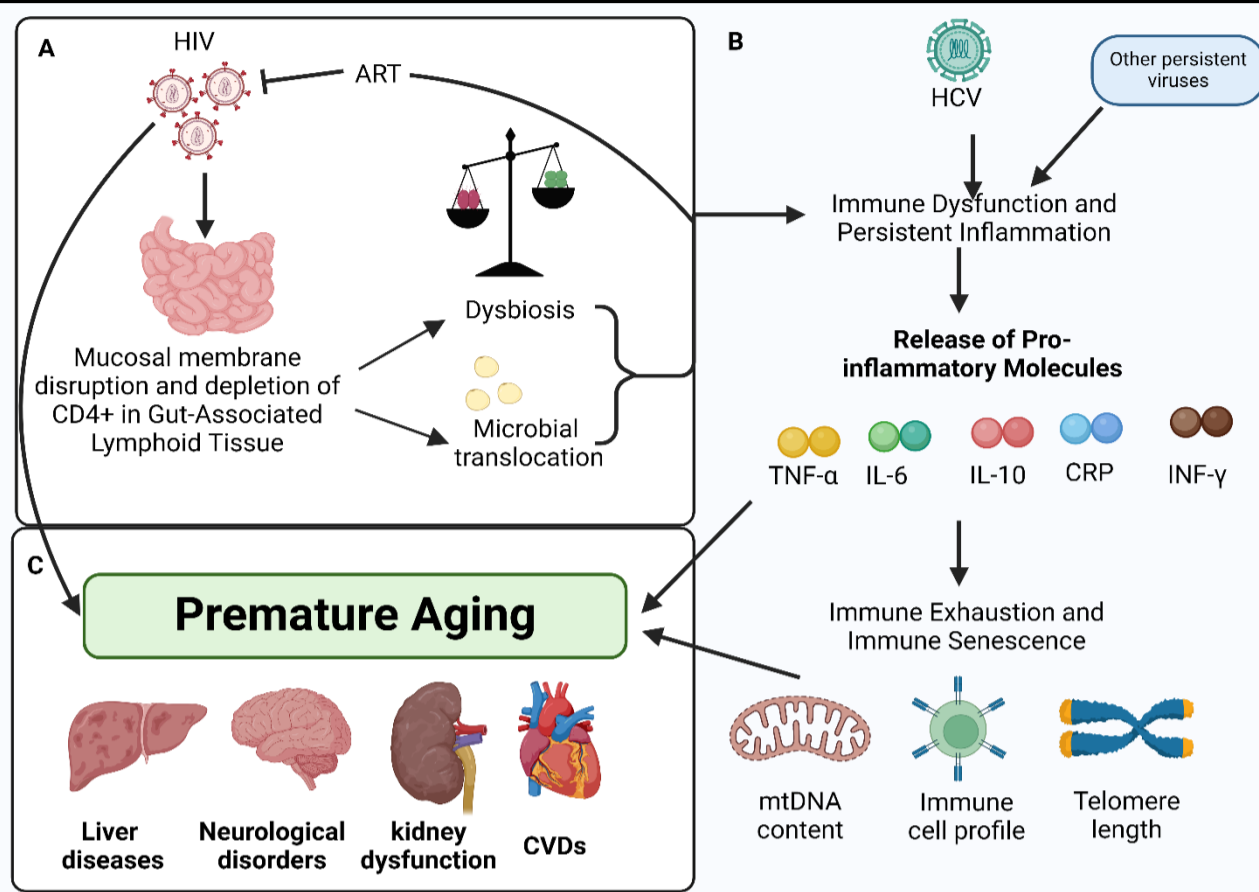


Figure 1. HIV, HCV, and Premature Aging

Objective

To characterize the effect of chronic HCV clearance on selected markers of immune aging and inflammation in women living with and without HIV.

Hypotheses

Successful clearance of HCV will be associated with 1) slower loss of LTL, 2) increased mtDNA content, 3) increased CD4:CD8 ratio, and/or 4) a decrease in CD8+ T cell CD28-:CD28+ ratios, and 5) decreased markers of inflammation.

Study Design

- This project is a longitudinal study **comparing several markers of immune aging before and after HCV clearance** among women aged ≥16 years living with HIV (study) and without HIV (controls).
- Participants are selected from 2 separate cohorts; the Children and Women AntiRetrovirals and Markers of Aging (**CARMA**) or the British Columbia CARMA-CHIWOs Collaboration (**BCC3**) with biospecimen collected pre and post-HCV clearance.

Methods

A) HCV Detection.

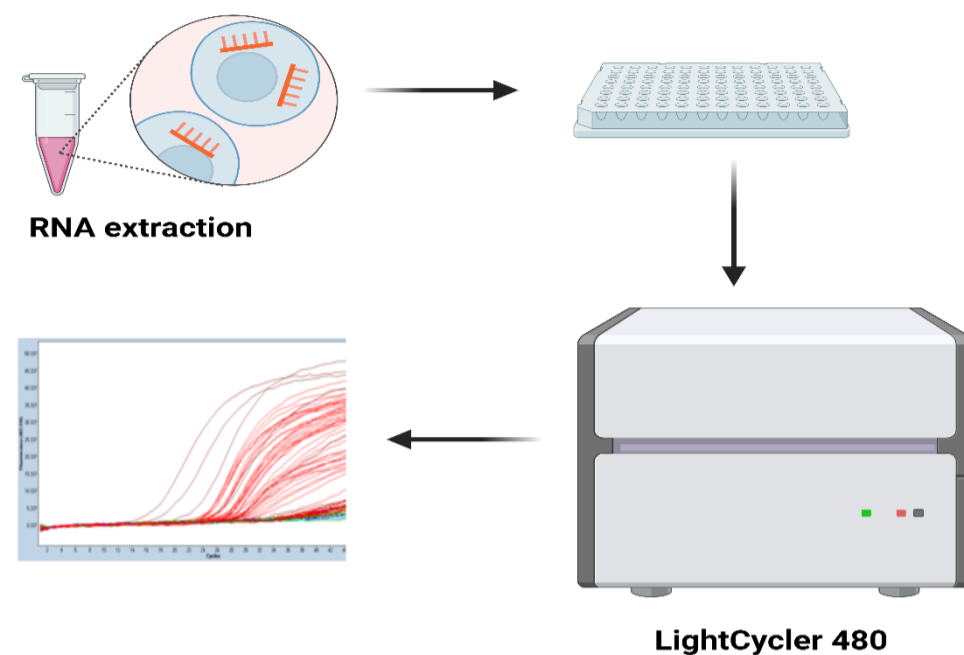


Figure 2. Detection of HCV RNA using Real-Time PCR (Duplex format)

B) Leukocyte Telomere Length measurements.

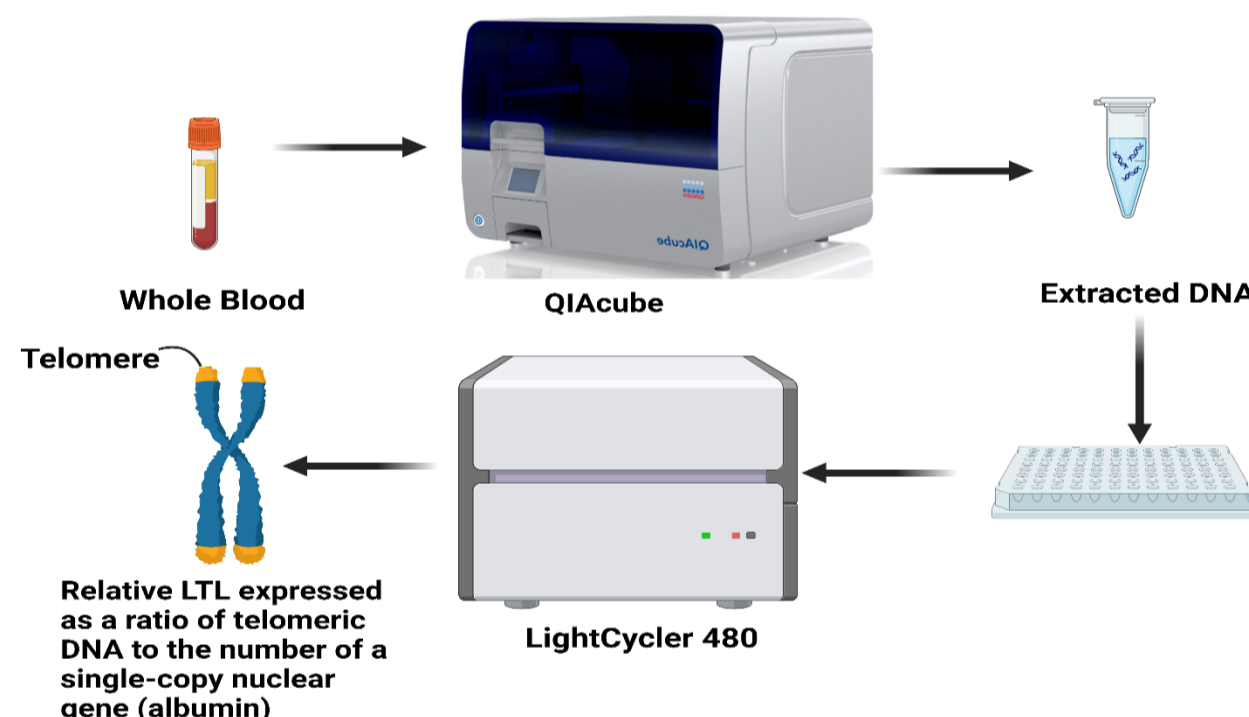


Figure 3. Telomere length by monochrome multiplex qPCR

Table 1. Study groups

GROUPS		BASELINE		FOLLOW-UP		TARGET PER GROUP	NUMBER PER GROUP
		HIV status	HCV status	HIV status	HCV status		
STUDY	HCV clearance	Positive	Ab+ RNA+	Positive	Ab+ RNA-	~30	18
	HCV clearance	Negative	Ab+ RNA+	Negative	Ab+ RNA-	~30	0
CONTROL	Chronic HCV	Positive	Ab+ RNA+	Positive	Ab+ RNA+	~30	8
	Chronic HCV	Negative	Ab+ RNA+	Negative	Ab+ RNA+	~30	4
	No HCV	Positive	Ab-	Positive	Ab-	~30	45
	No HCV	Negative	Ab-	Negative	Ab-	~30	21

We will later proceed to measure mtDNA content, CD4:CD8 T cell ratio, CD8 CD28-:CD28+ cell ratios, and selected markers of inflammation.

Expected Results

- Chronic viral infections tend to cause immune activation, inflammation and T-cell exhaustion which tends to shorten telomere length in immune cells.
- We anticipate that there will be an evolution in markers of immune aging and inflammation of these women from baseline to follow-up in women who clear HCV compared to those who don't.**

Significance

- Since this study is looking at several markers at once, it will help draw a more complete picture of the effects of HCV clearance on immune aging in women living with HIV and HCV.
- Treatment for HCV is costly and access to it is not always equitable. Determining its potential effect on aging markers will help inform the care of all women, including often marginalized and vulnerable WLWH.**

References

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Acknowledgements

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