**Characterization of tissue resident myeloid cells in the liver and lung of SIV-infected rhesus macaques.**

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**Background**
Viral dissemination occurs early after infection targeting CD4 T cells and monocytes/macrophages. Monocytes derived from bone marrow and tissue resident macrophages (TRMs) derived from yolk sac, are short-lived and long-lived cells, respectively. HIV infects non-lymphoid tissues, such as liver and lung in which TRMs may represent viral reservoirs (VRs). Whereas we demonstrated that early antiretroviral therapy (ART) efficiently prevents infection of monocytes in the blood, spleen and intestine of SIV-treated rhesus macaques (RMs), little is known so far about the role of TRMs, and whether these cells may represent VRs in SIV-infected RMs.

**Methods**
Rhesus macaques were infected with SIVmac251. Animals were sacrificed at different time point post-infection. Cells from liver and lung were mechanically isolated. The phenotype of TRMs was analyzed by flow cytometry using specific antibodies including anti-CD14, anti-CD16, as well markers of TRMs such as CD44, CD59, CD35, CD117, CD206, MERKT, and LYVE. The levels of viral DNA and RNA were quantified by qPCR for each tissue. `

**Results**
Our results revealed that myeloid cells from the lungs and livers of SIV-infected RMs expressed mostly CD117, CD206 and LYVE markers. By performing a mechanical procedure, instead to use a cocktail of proteases, we preserved CD14 shedding that allowed to identify infiltrate cells. Thus, we also detected infiltrate monocytes (CD14+) that do express TRM markers in the infected tissues. Concomitantly, our data revealed that liver and lung of SIV-infected RMs both contain viral RNA and DNA.

**Conclusions**
Therefore, we characterized the phenotypes of long-lived tissue resident macrophages in the lung and liver. To date we are assessing, which TRM subsets express viral DNA and RNA, and whether early ART prevents the infection of TRM in SIV-infected RMs. Understanding the nature of infected cells under ART is of crucial importance for developing strategies aiming to eradicate HIV.