



**Infectious Diseases Service
Regional Hospital of Lugano**

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The Infectious Diseases Service (SMI) is a specialised day clinic that deals with patients with infectious diseases. The Service works in close collaboration with local GPs.

The SMI is one of the seven reference centres for the Swiss HIV Cohort Study (SHCS), one of the world's largest epidemiological and clinical studies in the HIV field with more than 19'000 participants. The intense scientific activity is reflected in the large number of publications available at the website www.shcs.ch.



**Peer reviewed
publications in 2016**

Elzi L, Conen A, Patzen A, Fehr J, Cavassini M, Calmy A, Schmid P, Bernasconi E, Furrer H, Battegay M.

Ability to Work and Employment Rates in Human Immunodeficiency Virus (HIV)-1-Infected Individuals Receiving Combination Antiretroviral Therapy: The Swiss HIV Cohort Study.

Open Forum Infect Dis. 2016;3(1):ofw022. doi: 10.1093/ofid/ofw022. eCollection 2016.

Rusert P, Kouyos RD, Kadelka C, Ebner H, Schanz M, Huber M, Braun DL, Hozé N, Scherrer A, Magnus C, Weber J, Uhr T, Cippa V, Thorball CW, Kuster H, Cavassini M, Bernasconi E, Hoffmann M, Calmy A, Battegay M, Rauch A, Yerly S, Aubert V, Klimkait T, Böni J, Fellay J, Regoes RR, Günthard HF, Trkola A; Swiss HIV Cohort Study.

Determinants of HIV-1 broadly neutralizing antibody induction.

Nat Med. 2016;22(11):1260-1267. doi: 10.1038/nm.4187. Epub 2016 Sep 26.

Salazar-Vizcaya L, Kouyos RD, Zahnd C, Wandeler G, Battegay M, Darling KE, Bernasconi E,

Calmy A, Vernazza P, Furrer H, Egger M, Keiser O, Rauch A; Swiss HIV Cohort Study.

Hepatitis C virus transmission among human immunodeficiency virus-infected men who have sex with men: Modeling the effect of behavioral and treatment interventions.

Hepatology. 2016;64(6):1856-1869. doi: 10.1002/hep.28769. Epub 2016 Oct 19.

Sauter R, Huang R, Ledergerber B, Battegay M, Bernasconi E, Cavassini M, Furrer H, Hoffmann M, Rougemont M, Günthard HF, Held L; and the Swiss HIV cohort study.

CD4/CD8 ratio and CD8 counts predict CD4 response in HIV-1-infected drug naive and in patients on cART.

Medicine (Baltimore). 2016;95(42):e5094.

Shilaih M, Marzel A, Scherrer AU, Braun DL, Kovari H, Rougemont M, Darling K, Battegay M, Hoffmann M, Bernasconi E, Hirzel C, Günthard HF, Kouyos RD; Swiss HIV Cohort Study a; Swiss HIV Cohort Study.

Dually Active HIV/HBV Antiretrovirals as Protection Against Incident Hepatitis B Infections: Potential for Prophylaxis.

J Infect Dis. 2016;214(4):599-606. doi: 10.1093/infdis/jiw195. Epub 2016 May 18.



Main areas of research

Impairment of CCR6+ and CXCR3+ Th cell migration in HIV-1 infection is rescued by modulating actin polymerization.

Investigators: V. Cecchinato, E. Bernasconi, RF. Speck, M. Proietti, U. Sauermann, G. D'Agostino, G. Danelon, T. Rezzonico Jost, F. Grassi, L. Raeli,

F. Schöni-Affolter, C. Stahl-Hennig, M. Ugucioni; Swiss HIV Cohort Study.

CD4+ T cell repopulation of the gut is rarely achieved in HIV-1-infected individuals who are receiving clinically effective antiretroviral therapy. Alterations in the integrity of the mucosal barrier have been indicated as a cause of chronic immune activation and disease progression. In this study, we present evidence that persistent immune activation causes impairment of lymphocytes to respond to chemotactic stimuli, thus preventing their trafficking from the bloodstream to peripheral organs. CCR6+ and CXCR3+ Th cells accumulate in the blood of aviremic HIV-1-infected patients on long-term antiretroviral therapy, and their frequency in the circulation positively correlates to levels of soluble CD14 in plasma, a marker of chronic immune activation. Th cells show an impaired response to chemotactic stimuli both in humans and in the pathogenic model of SIV infection, and this defect is due to hyperactivation of cofilin and inefficient actin polymerisation. Taking advantage of a murine model of chronic immune activation, we demonstrate that cytoskeleton remodelling, induced by okadaic acid, restores lymphocyte migration in response to chemokines, both in vitro and in vivo. This study calls for novel pharmacological approaches in those pathological conditions characterised by persistent immune activation and loss of trafficking of T cell subsets to niches that sustain their maturation and activities. The study was completed in 2016.

[The Swiss HCV-free trial: impact of a test, treat and cure strategy on the hepatitis C prevalence in men having sex with men in the SHCS.](#)

Investigators: DL. Braun, G. Wandeler, R. Kouyos, D. Nicca, M. Stoeckle, K. Metzner, D. Haerry, J. Böni, A. Conen, A. Calmy, R. Weber, H. Günthard, A. Rauch, J. Fehr and other representatives of the SHCS.

Background: the prevalence of hepatitis C infection (HCV) is increasing in HIV-positive men having sex with men (MSM) participating in the SHCS. MSM practising high-risk sexual behaviour are recognised to be the main drivers of the current HCV epidemic. Improvement of (i) HCV screening and (ii) subsequent universal treatment with the newest anti-HCV direct acting agents (DAAs) in

this population could have a major impact on the prevalence of HCV infection in Switzerland.

Study Aims: to identify the prevalence of ongoing HCV infection in MSM participating in the SHCS, to evaluate HCV treatment uptake of the newest DAAs and finally to investigate the impact of an HCV test, treatment and cure strategy on the postintervention HCV prevalence in this population.

Study Design: all MSM underwent intensified HCV-screening by measuring HCV-RNA to assess the prevalence of ongoing HCV infection in this population (Period A: October 2015 to March 2016). After that, interferon-free HCV treatment with the newest DAAs was offered to all HCV-RNA positive MSM. The goal of universal HCV treatment is to rapidly reduce the pool of infectious MSM (Period B: April 2016 to December 2016). After this treatment period, the prevalence of ongoing HCV infection will be re-assessed in the same population (Period C: from March 2017). The change in prevalence of HCV infection and different parameters will be compared before and after the intervention. The study is ongoing.

[The Swiss HIV Cohort Study Core Project Metabolism and Aging \(M + A core project\).](#)

Lead investigator: P. Tarr (in Lugano: E. Bernasconi).

This ongoing study has already been described in the previous report. The aim is to assess morbidity of HIV-infected patients outside the classic opportunistic diseases. Indeed, premature ageing with cardiovascular and cerebrovascular disease, osteoporosis, neurocognitive dysfunction, diabetes mellitus, lipodystrophy, and other morbid conditions are increasingly important determinants of the long-term health of HIV-infected individuals.



Main funding

SHCS (through Swiss National Science Foundation, SNSF), Infectious Diseases Research Fund, pharmaceutical industry.