

**A neutralizing monoclonal antibody (mAb A24)
directed against the transferrin receptor induces
apoptosis of tumor T lymphocytes from ATL patients**

Ivan Moura, Yves Lepelletier, Bertrand Arnulf, Ali Bazarbachi, Renato
Monteiro, Olivier Hermine

► **To cite this version:**

Ivan Moura, Yves Lepelletier, Bertrand Arnulf, Ali Bazarbachi, Renato Monteiro, et al.. A neutralizing monoclonal antibody (mAb A24) directed against the transferrin receptor induces apoptosis of tumor T lymphocytes from ATL patients. *Retrovirology*, BioMed Central, 2011, 8 (Suppl 1), pp.A60. <inserm-00599544>

HAL Id: inserm-00599544

<http://www.hal.inserm.fr/inserm-00599544>

Submitted on 10 Jun 2011

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



MEETING ABSTRACT

Open Access

A neutralizing monoclonal antibody (mAb A24) directed against the transferrin receptor induces apoptosis of tumor T lymphocytes from ATL patients

Ivan C Moura^{1,2}, Yves Lepelletier¹, Bertrand Arnulf³, Ali Bazarbachi⁴, Renato C Monteiro², Olivier Hermine^{1*}

From 15th International Conference on Human Retroviruses: HTLV and Related Viruses Leuven and Gembloux, Belgium. 5-8 June 2011

Adult T-cell leukemia/lymphoma (ATL) is an aggressive lymphoid proliferative disease that exists under diverse clinical forms ranging from chronic to acute. In contrast to resting T cells, human T-cell lymphotropic virus type 1 (HTLV-1) infected cells constitutively express high levels of surface transferrin receptor (TfR). Interestingly this expression is higher in acute than in chronic forms. We have characterized a new monoclonal antibody (mAb A24) directed against the human TfR that blocks the proliferation and induced apoptosis through mitochondria depolarization of ATL cells *ex vivo*. We determined that A24 binds TfR with an equilibrium constant (Kd) of 2.7 nM and competes with transferrin for binding to TfR. Interestingly A24 exhibits a higher affinity than transferrin when TfR are highly expressed. A24 inhibited [⁵⁵Fe]-transferrin uptake through TfR endocytosis via the clathrin adaptor protein-2 complex pathway followed by transport to lysosomal compartments. In monkey administration of single and repeated doses of A24 did not induce significant toxicity except a slight decreased of haemoglobin level, increased of transferrin and decreased of iron serum levels. Interestingly in lymph nodes, apoptosis was observed in germinal center in zone of high proliferation of B and T cells. Therefore, A24 might be a safe and effective treatment of ATLL particularly acute forms.

Author details

¹CNRS et Service d'hématologie, Hôpital Necker, Paris, France. ²INSERM, hôpital Bichat, Paris, France. ³Service d'hématologie, Hôpital Saint Louis, Paris, France. ⁴Department of hematology, university of Beirut, Beirut, Lebanon.

¹CNRS et Service d'hématologie, Hôpital Necker, Paris, France
Full list of author information is available at the end of the article

Published: 6 June 2011

doi:10.1186/1742-4690-8-S1-A60

Cite this article as: Moura et al.: A neutralizing monoclonal antibody (mAb A24) directed against the transferrin receptor induces apoptosis of tumor T lymphocytes from ATL patients. *Retrovirology* 2011 **8**(Suppl 1):A60.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

