10th ANNUAL DEPARTMENT OF PATHOLOGY YOUNG INVESTIGATORS’ DAY
POSTER SESSION
Thursday, April 17th, 2008
TURNER CONCOURSE
REGISTRATION FORM

Applicant’s Name: _Jobert G. Barin_____________ Degree: _____________
Applicant’s Division: __Immunology_____________________________________
Faculty Preceptor: _Noel R. Rose__________________________
(Must hold a primary appointment in Pathology)
Appointment Category: _____ House Staff _____ Clin Fellow _____ Research Fellow
_____ Medical Student __X__ Graduate Student (Program: __Immunology__)
Register for: _____ Clinical Research _____ Translational Research __X__ Basic Research
Full Poster Title * __IL17 induces a novel and unique monocyte/macrophage phenotype

__________________________
Where has the work been presented?
Meeting Name ______________________________________________________________________
Meeting Date _______________________________________________________________________
Not Previously Presented __X__
Where is this work being published? ______________________________________________________________________
Journal Name, Volume, Page, Date ______________________________________________________________________
In Preparation (Y/N) - Where? ______________________________________________________________________
Author(s) (First & Last) ______________________________________________________________________
In-House Address: __Ross 648____________________________________________
(Room # and Building Name, Lab, etc.)
Telephone: _4 4173______________ Beeper: ______________________
Fax: _4 3548______________ E-mail: __Jbarin@jhmi.edu__

*INCLUDE A ONE-PAGE ABSTRACT (including title and all authors) OF THE WORK
YOU WILL BE PRESENTING

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E-mail COMPLETED Registration form and abstract to:
Stacey Morgan (smorgan9@jhmi.edu) on or before
Friday, March 14th, 2008

If you have questions or problems regarding your submission, please
contact Stacey Morgan via e-mail (smorgan9@jhmi.edu)
IL17 induces a novel and unique monocyte/macrophage phenotype

Immune responses mediated by CD4+ cells have long been known to control a wide variety of disease pathologies, from allergy and infection, to transplant, cancer, and autoimmune disease. It has recently been shown that production of interleukin-17 (IL17) by CD4+ cells is independent of IFNγ production by TH1 cells and IL4 production by TH2 cells. These “TH17” cells have been reported to participate in pathogenesis of autoimmune disease, as well as clearance of fungal and extracellular bacterial infections. Concurrently, we have also begun to appreciate the complex heterogeneity of the regulation of differentiation and effector function in cells of the myeloid lineages, namely monocytes and macrophages (MO/Mφ). Notably, investigators have paid particular attention to the regulation of cytokine-mediated differentiation in MO/Mφ; whereas TH1-derived IFNγ induces nitric oxide-mediated killing of intracellular bacteria and antigen-presentation functions (“classically” activated Mφ, cMφ), TH2-derived IL4 and IL13 potentiate a profibrotic, scavenger programme in MO/Mφ (“alternatively” activated Mφ, aMφ).

In synthesizing these two models, we sought to investigate whether Th17-derived IL17 may participate in the regulation of MO/Mφ differentiation, in a manner that is unique and independent of the actions of IFNγ and IL4/IL13. Towards this end, we have employed microarray techniques to assess global regulation of transcription in IL17-conditioned macrophages, and found distinct and unique sets of transcripts induced by IL17, that are not induced by IFNγ or by IL13. Furthermore, we observe that conditioning of macrophages by IL17 in vitro not only fails to induce archetypal inflammatory responses, but may actually suppress them. We further observe regulation of a unique set of pattern recognition receptors, cytokines, chemokine receptors and costimulatory ligands that is not shared by IFNγ or IL13. In addition to observing these phenotypes in vitro, we are also able to observe them in vivo, in an archetypally Th17-mediated mouse model of autoimmune myocarditis. Taken together, these data indicate that IL17 programs differentiation in murine macrophages in a manner that is unique and distinct from those induced by IFNγ or IL13, and is likely to potentiate novel mechanisms of immune effector functions and regulation.