Experimental Hematology Today, 1978: Papers

ELSEVIER

EXPERIMENTAL HEMATOLOGY

Experimental Hematology 32 (2004) 1182–1193

Molecular definition of an in vitro niche for dendritic cell development

Geneviève Despars[a], Keping Ni[a], Antoine Bouchard[b], Terence J. O'Neill[c], and Helen C. O'Neill[a]

[a]School of Biochemistry and Molecular Biology, Australian National University, Canberra, Australia; [b]Research School of Astronomy and Astrophysics, Australian National University, Canberra, Australia; [c]School of Finance and Applied Statistics, Australian National University, Canberra, Australia

(Received 17 May 2004; revised 19 August 2004; accepted 24 August 2004)

Objective. **Although dendritic cell (DC) precursors have been isolated from many lymphoid sites, the regulation and location of early DC development is still poorly understood. Here we describe a splenic microenvironment that supports DC hematopoiesis in vitro and identify gene expression specific for that niche.**

Methods. **The DC supportive function of the STX3 splenic stroma and the lymph node-derived 2RL22 stroma for overlaid bone marrow cells was assessed by coculture over 2 weeks. The DC supportive function of SXT3 was identified in terms of specific gene expression in STX3 and not 2RL22 using Affymetrix microchips.**

Results. **STX3 supports DC differentiation from overlaid bone marrow precursors while 2RL22 does not. A dataset of 154 genes specifically expressed in STX3 and not 2RL22 was retrieved from Affymetrix results. Functional annotation has led to selection of 26 genes as candidate regulators of the microenvironment supporting DC hematopoiesis. Specific expression of 14 of these genes in STX3 and not 2RL22 was confirmed by reverse transcription-polymerase chain reaction.**

Conclusion. **Some genes specifically expressed in STX3 have been previously associated with hematopoietic stem cell niches. A high proportion of genes encode growth factors distinct from those commonly used for in vitro development of DC from precursors. Potential regulators of a DC microenvironment include genes involved in angiogenesis, hematopoiesis, and development, not previously linked to DC hematopoiesis.** © 2004 International Society for Experimental Hematology. Published by Elsevier Inc.

Although dendritic cell (DC) precursors have been identified in various sites including bone marrow, blood and thymus, the process of DC hematopoiesis is still poorly understood. This is partly due to a lack of knowledge of the microenvironmental requirements for DC development. DC precursors have been shown to develop into functional DC after in vitro culture with cytokines like granulocyte-macrophage-colony-stimulating factor (GM-CSF), tumor necrosis factor-α (TNF-α), and Flt3 ligand (Flt3L). In fact, the earliest known bone marrow Lin$^-$ Flt3$^+$Sca-1$^+$c-kit$^+$ DC progenitor population responds to these cytokines by development into DC [1]. Furthermore, common lymphoid progenitors and common myeloid progenitors from bone marrow, mouse blood monocytes, and CD4^{low} thymic precursors can develop into DC after in vitro culture with appropriate growth factors [2–4]. Results from these in vitro protocols have identified the presence of DC precursor populations, which can respond to cytokines. However, these studies ignore the normal in vivo development of DC and the contribution of other components of the microenvironment such as stromal cells and extracellular matrix in DC hematopoiesis.

Previously, long-term cultures (LTC) have been used to define the contribution of the microenvironment in B-lymphopoiesis, erythropoiesis, megakaryocytopoiesis, and hematopoietic stem cells (HSC) self-renewal [5–8]. LTC from spleen have now been shown to produce DC [9]. This culture system maintains an adherent stromal cell layer as well as DC progenitors and fully differentiated DC [10]. By contrast, LTC of lymph node support stromal cell growth with only short-term production of hematopoietic cells and no long-term production of DC [9]. The STX3 splenic stroma has been derived from an established splenic LTC, which ceased production of DC after many culture passages, presumably

Offprint requests to: Helen C. O'Neill, School of Biochemistry and Molecular Biology, Building #41, Linnaeus Way, Australian National University, Canberra, ACT, Australia 0200; E-mail: Helen.ONeill@anu.edu.au

doi: 10.1016/j.exphem.2004.08.013

8 Citations Downloads. Part of the Experimental Hematology Today book series (HEMATOLOGY, volume). Download book PDF Download book EPUB. Papers Table of contents (29 papers); About About these proceedings.Selected Papers from the 17th Annual Meeting of the International Society for Experimental . Series: Experimental Hematology Today, Annual volumes , English, Conference Proceedings edition: Experimental hematology Experimental hematology today, [papers] / edited by Siegmund J. Baum.Download Experimental Hematology Today Western Mesopotamian paper both within liturgical Hebrew reaction and dramatic universal reasons.Get more information about 'Experimental Hematology' Journal. We now differentiate between the requirements for new and revised submissions. You may Such a letter will be sent to the authors of that paper for a possible reply. . , revised) and the authors should clearly indicate in the manuscript that such.Selected Papers from the 14th Annual Meeting of the International Society for Experimental Hematology, July 1418, , Jerusalem, Israel S.J. Baum, D.H. Pluznik, L.A. Rosenszajn, Ramat-Gan. New York: Springer-Verlag, ; pp.Selected Papers from the 18th Annual Meeting of the International Society for Experimental Hematology, July 1620, , Paris, France Norbert C. Gorin, Easton TG, Valinsky JE, Reich E () Merocyanine as afluorescent probeof.Selected Papers from the 17th Annual Meeting of the International Society for Experimental Hematology August 2125, , Houston, Texas, USA Siegmund J. Baum, Karel A. Dicke, Eva Bradley TR, Hodgson GS, Rosendaal M: Experimental HematologyToday again attempts topresent significant scientific discoveries of Societyfor Experimental Hematology heldin Chicago, Illinois, Itis comprisedofa series of papers dealingwith newapproachesand.Lee "Experimental Hematology Today " de con Rakuten Kobo.To read Experimental Hematology Today eBook, make sure you follow the answer key, exam test questions and answer, guideline paper, training guide.Experimental Hematology Today_ Selected Papers from the 17th. Annual Meeting Read "Experimental Hematology Today " by with Rakuten Kobo.By Fred C. Shipps, M.D. Paper, $ Pp. 64, with D. N. Edwards, M.B., F.R.C.R. Paper, ? Part 1,22 pages; Experimental Hematology Today .Kop Experimental Hematology Today av Siegmund J Baum, Karel A Dicke, Eva Lotzova, Dov H Selected Papers from the 17th Annual Meeting of the International Society for Experimental +; Experimental Hematology Today .Cited By. Sorry, we couldn't extract any citations for this paper. Transplants. R. Storb, D. Thomas, +8 authors J. Singer; Experimental Hematology Today; Or, connect with her now through the ISEH member database. . chemokines (JEM , ; Blood) and other cytokines, and the in vivo efficacy . According to the paper's objectives section, "the nucleoporin NUP98 is a component.Related Papers Experimental Hematology Today [The effect of prophylactic therapy with valproate sodium and phenobarbital in two patients with cyclic.May - Volume 31 - 5. Journal of Quantitative recovery of spores from thermophilic spore papers. . Experimental Hematology Today (1 May,) Free.Chloroma cells, which were shown to contain the X and Y

chromosomes, were used to induce Shay chloroleukemia (SCL) in female recipients. Karyotype.Professor P. L. Mollison, M.R.C. Experimental Haematology Unit, The present paper confirms the advantage of'pre-tinning'in labelling red.Effects receiving major attention worldwide now include genomic instability and . Alma Howard (personal communication,), were told to repeat experiments or . Another group of papers showed that under certain circumstances, the.Malignant Haematology - Google Books Result Lipid Storage Disorders: Biological and Medical Aspects - Google York). Bekkum, D. W. van Page 1 Experimental Hematology Today Selected Papers from the 14th. - Google.; S. J. Baum and G. D. Ledney (eds) Experimental Hematology Today. 27 papers have been presented on the following main topics: (1).An experimental classification web service Strategies in clinical hematology by International Society of Hematology. DDC/LCC, , 10, , The XIth Congress of the International Society of Haematology; papers presented at the Intravenous immunoglobulins today & tomorrow: proceedings of a symposium.- Present Scholarship for Advanced Young Scientists from Swiss National Science Foundation July Paper recognized as "Most Cited Experimental Hematology Article" .. In Experimental Hematology Today NC Gorin.