شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومـــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

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To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Study of the haemopoietic tissues during the pre-and post-natal life of the mouse.

Thesis
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(Histology)

By

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بسم الله الرحمن الرحيم

"و قل رب زدني علما"

صدق الله العظيم (طه ١١٤)

To

The Soul of My Father,

My Mother,

My Husband,

And

Ahmed; My Kid

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INTRODUCTION & AIM OF THE WORK

INTRODUCTION

Haemopoiesis is the developmentally regulated and tissue-specific process of blood cell production. The predominant anatomic site of haemopoiesis changes several times during murine and human ontogeny(Yoder et al., 2001). Haemopoiesis in the developing organism is a dynamic process which involves a variety of tissue sites. Tissues which actively or potentially produce blood cells are haemopoietic tissues. These different tissues serve as major blood cell producers at different gestational ages and the gestational haemopoiesis occurs in three major phases. The mesoblastic phase; in the earliest stages of embryogenesis, haemopoiesis begins in the yolk sac(YS) with the differentiation of the yolk sac angioblasts into small erythroblasts (Sasaki and Kendall,1985). Haemopoiesis then occurs through a stepwise process (Moore et al.,1970). Only primitive erythropoiesis is evident in the yolk sac, which is characterized by the production of erythrocytes with unextruded nuclei and expression of embryonic globin genes(Zon et al.,1995). Haemopoiesis then appears in the aorta-gonad-mesonephros (AGM) region of the para-aortic splanchnopleura in the developing mouse embryo, after which the fetal liver (FL) becomes the major site of embryonic blood production; The hepatic phase (Zon et al.,1995). Although culture and transplantation experiments have shown that both the YS(Yoder et al.,1997)and AGM(Godin et al., 1995; Dzierzak et al.,1999) regions contain multipotent hematopoietic stem cells (HSCs), definitive, multi-lineage haemopoiesis does not occur until the FL becomes the predominant hematopoietic organ(Zon et al.,1995).This suggests that environmental cues may restrict and specify the cell fate determinations of HSCs. Subsequently haemopoiesis takes place in the

spleen which serve as temporary haemopoietic tissues in mammals during much of the fetal period. At the close of the fetal period, the bone marrow becomes the major site for haemopoiesis; The myeloid phase, and continues this function through out the life.

As all blood cells have a definite life span, they must be replaced continuosly (Haar, 1991). A functional blood population is made up of eight distinct cell types: erythrocytes, granulocytes (neutrophils, eosinophils, basophils), macrophages, megakaryocytes, and T and B lymphocytes(Klein, 1990). These mature cell groups have varying lifespans, which range from several hours, e.g., neutrophils, to several years, e.g., memory lymphocytes. This wide range of half-lives indicates a requirement for different cells to be produced at different rates. The requirement for continuous replenishment of mature effector cells is met by a relatively small population of haemopoietic stem cells laid down in early embryogenesis.

In the early primordium of the mouse liver, primitive erythroblasts from the yolk sac are actively phagocytosed by hepatic macrophages (Sasaki et al., 1993). In the primordial spleen, free immature macrophages can be found earlier than the haemopoietic cells(Sasaki and Matsumura,1988) and in the bone marrow, macrophages are closely associated with haemopoiesis(Crocker and Gorden, 1985). However little information is available about the functional significance of phagocytosis by embryonic macrophages in the haemopoietic tissues.

The purposes of this work is to concern the process of synthesis of blood cells in the haemopoietic tissues (liver, spleen, and bone marrow), and the role of the macrophages in phagocytosis and storage of iron using the histological techniques.

Aim Of The Work

The aim of this study was to evaluate the synthesis of blood cells; erythropoiesis , granulopoiesis , and lymphopoiesis, in the liver, spleen and bone marrow both pre- and post-nataly in fetal and neonatal mice. Further aim was to investigate the role of the macrophages in phagocytosis and storage of iron in the haemopoietic foci.

REVIEW OF THE LITERATURE