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| Family member | Developmental stage expression | Impact on neutrophil population in Cebpx-/- model | Functional role in granulopoiesis | References |
| *Cebpa* | HSCs, CMPs, GMPs | Loss of primary granules including; MPO and ELANE | *Cebpa* is required for transition from CMP to GMP. In its absence, granulopoiesis is blocked and there is an accumulation of CMPs. | [1-4] |
| Loss of specifc granules including lactoferrin |
| Loss of CSF3R and IL6R |
| Loss of granulocytes but monocytes were retained. |
| Newborn mice lack granulocytes but retain monocytes |
| BM from adult mice have markedly less GMPs |
| *Cebpb* | GMPs - mature neutrophils | -/- mice had increased susceptibility to systemic Candida Albicans | *Cebpb* is essential for emergency and/or cytokine induced granulopoiesis , however it is not required for steady-state haematopoiesis. | [5-8] |
| -/- mice also had increased susceptibility to listeria and salmonella infections. |
| There is no mobilization of granulocytes in response to systemic fungal infection or cytokine stimuli |
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| *Cebpe* | Promyelocytes - mature neutrophils | Young -/- mice showed no difference in behaviour compared with wild-type and heterozygous littermates. | *Cebpe* is required for the terminal differentiation of granulocytes and it's deficiancy blocks granulocytic maturation but did not affect any of the other haemopoietic lineages. | [9-14] |
| -/- mice have a marked increase in granulocytic progenitors in BM. |
| Increased number of hyposegmented atypical neutrophils in the peripheral blood. |
| Neutrophil popultions from -/- mice sjowed no NADPH oxidase activity, reduced phagocytosis and impaired migratory function. |
| Neutrophil popultions from -/- mice lacked specific and tertiary granules including lactoferrin and gelatinase B. They also display delayed chemotaxis. |
| -/- mice suffer from severe or fatal repeat chronic bacterial infections and died within 3-5 months under specific pathogen-free conditions. |
| *Cebpb Cebpe (double knockout model)* | GMP - mature neutrophils | Early development was found to be normal in double knockout (*bbee*) mice | There seems to be an additive effect when both *Cebpb* and *Cebpe* are absent. There is a block at the myelocyte to metamyelocyte stage of differentiation. Both *Cebpb* and *Cebpe* regulate the expression of cytokines, such as IL-8, in human neutrophils. | [15] |
| *bbee* haematopoietic progenitor cells had an impaired ability to form colonies. |
| *bbee* mature neutrophils lacked granules and presented with atypical bi-lobed nuclei. |
| *bbee* mice died between 2-3 months of age. They presented with splenomegaly and several different strains of systemic bacterial infection. |
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