## **BD** Overview of B-cell Development

23-17817-00 **Positive** Negative **Peripheral** selection selection selection Shuttling to Antigen Clonal expansion Migration to 2° dependent Somatic hypermutation bone marrow/ Bone marrow generated **Expression of** 2° lymphoid organs activation • Ig class switch Cyclin E1 Ig H and L chain gene rearrangements lymphoid organs Marginal Zone B survival signal Regulatory B **Development of** conventional B cells Germinal Plasma cell Plasma cell Immature B Transitional Follicular B Activated B Plasmablast Memory B short lived center B long lived Immunoglobulin IgM<sup>high</sup>, IgD<sup>low</sup> IgM-IgMhigh, IgDva IgM/G/A/E+ lgM⁻ IgM+, IgD-IgM+, IgDlow IgM<sup>low</sup>, IgD<sup>+</sup> IgM+, IgD+ IgM/G/A/E+, IgDvar IgM/G/A/E+, IgDlg-CD43, CD93, B220, CD19, CD24, CD43, CD19, CD24, CD25var, CD19, CD24, CD93, CD19, CD22, CD23, CD27, CD69, CD80, CD19, CD20, CD37, CD19, CD138, CD268, CD28, CD138, CD268, CD28, CD93, CD138, CD38var, CD62Lvar Mouse positive CD19, CD21var, CD23var, CD1d, CD9, CD21high, CD1dhigh, CD5, CD19, CXCR4,Flt3, IL7R B220, IL7R B220, BP1, IL7R, Siglec-G CD268, B220 CD24, CD93, CD268, CD22high, CD35high, CD24, TIM-1± CD38, CD268, B220, CD95, CD268, B220, CD95, CD268, CXCR5, CXCR4, MHCII CD269, CXCR4high CD268, CD269, CD80var, CD95low, markers CCR7, CXCR5 CXCR4high B220, CCR7 B220 CXCR5, Flt3, MHCIIhigh GL7, Siglec2 CD268, B220, CCR7, CXCR5 CD23, CD43 CD23, CD93 **Mouse negative** CD19, CD24<sup>low</sup>, ckit<sup>low</sup> BP1, ckit<sup>low</sup>, Flt3 CD43<sup>low</sup>, ckit CD62L, CD93vai CD1dlow, CD21/35low CD138, CXCR4 CD38low, CD93 B220<sup>low</sup>, Flt3 CD19, CD38<sup>low</sup> CD19, CD38low CD93 B220low, MHCIIlow B220<sup>low</sup>, MHCII markers Human positive CD10, CD34, CD38 CD10, CD19, CD24, CD10, CD19, CD20, CD10, CD19, CD20, CD5, CD19, CD20, CD21, CD1c, CD19, CD20, CD1dhigh, CD5, CD19, CD19, CD20, CD21, CD19, CD20, CD25, CD10, CD19, CD20, CD19, CD27high, CD38high CD27, CD28, CD38high, CD27, CD28, CD38high, CD19, CD20, CD27var CD24high, CD38high CD40, CD268, CCR7, CD34, CD38, IL7/3R CD24, CD38, IL7/4/3R CD21, CD24high, CD38high, CD21high, CD27var CD21, CD24high CD22, CD23, CD24, CD27, CD30, CD69, CD23, CD27, CD38high, CD268, CD269, MHCII CD138, CD268, CD269, CD138, CD268, CD269, markers CXCR4,5,7 CD40, CD268, IL4R CD268, CCR7 CD268, CCR7, CXCR5 CD80, CD86, CD95, CD95, CD268, CD269, CXCR4 CXCR4 CD135, CD268, CXCR5 CXCR5 ckitlow CD34, ckit CD27, ckit, IL7R CD10low, CD27 CD27<sup>var</sup> CD10, CD27, CD24<sup>low</sup> CD20, CD138 CD19<sup>low</sup>, CD20, MHCII<sup>low</sup> CD23<sup>low</sup>, CD38 **Human negative** ckit<sup>low</sup> CD19<sup>low</sup>, CD20, MHCII CD24low, CD38lov markers **Enzymes** EZH2 Pax5 BLIMP1 BLIMP1 Pax5 EBF1 E2A **Transcription** PU.1 Oct2 Oct2 factors IRF4 IRF4 IRF4 Runx3 BCL6 XBP-1S SPI-B SPI-B Zbtb20