

28AB-ISMS26 Establishment and Application of Novel Hairless Highly Immunodeficient Mice

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Highly immunodeficient mice have been used in human stem cells, tumor and infection research, as these mice accept human engraftment. We established NOD/Scid/Jak3 deficient (NOJ) mice and NOD/Rag-2/Jak3 double deficient (NRJ) mice. NOJ and NRJ mice showed complete loss of B and T lymphocytes, NKT cells, NK cells and complement with dysfunction of macrophage and dendritic cells. Human cord blood derived CD34⁺ cells reconstituted human hematopoietic and immune system in NOJ and NRJ mice. We also established Hairless NOJ and NRJ mice. These mice showed hairless phenotype with thin skin as well as highly immunodeficient phenotype, and subcutaneously transplanted EGFP and mCherry transduced human tumor cells were successfully engrafted and detected with an *in vivo* fluorescence imager. Thus, Hairless NOJ and NRJ mice are invaluable tool for *in vivo* imaging studies in human biomedical research.