

Comparison of Cytokine Transgenics for Improved Myeloid Lineage Reconstitution



Several super immunodeficient models expressing cytokines designed to drive myeloid cell lineage commitment have been generated. Explore the features of each model in the comparison table below.

Model	huNOG-EXL	Humanized NSG-SGM3 (or hu-CD34-SGM3)	Humanized MISTRG
Strain	hGM-CSF/hIL3-NOG	NSG TM -SGM3	MISTRG
Also Known As	IL3/GM-Tg	NSGS	-
Nomenclature	NOD.Cg-Prkdc ^{scid} Il2rg ^{tm1Sug} Tg(SV40/HTLV-IL3,CSF2)10-7Jic/JicTac	NOD.Cg-Prkdc ^{scid} Il2rg ^{tm1Wjl} Tg(CMV-IL3,CSF2,KITLG)1Eav/MloySzJ	C;129S4-Rag2 ^{tm1Flv} Csf1 ^{tm1(CSF1)Flv} Csf2/Il3 ^{tm1.1(CSF2,IL3)Flv} Thpo ^{tm1.1(TPO)Flv} Il2rg ^{tm1.1Flv} Tg(SIRPA)1Flv/J
Background	NOG (NOD strain background)	NSG TM (NOD strain background)	Mixed BALB/c x 129S4
Cytokines Expressed (Other Modifications)	Human GM-CSF (CSF2) Human IL-3	Human GM-CSF (CSF2) Human IL-3 Human KITLG (SF)	Human GM-CSF (CSF2) Human IL-3 Human M-CSF (CSF1) Human TPO Human SIRPA
Cytokine Levels	hGM-CSF ~35 pg/ml hIL-3 ~80 pg/ml ¹	hGM-CSF, hIL-3 and hKITLG ~2000-4000 pg/ml ⁹	Not reported
Promoter	SV40	CMV	All under endogenous mouse promoters except GM-CSF under human promoter.
Increase in Myeloid Cells Over Base Model	~3 fold relative to NOG ¹	~1.5 to 5 fold relative to NSG ³⁻⁴	~9 fold compared to Rag2/Il2rg null and ~6 fold compared to NSG ⁸
Lifespan Unengrafted	Expected normal lifespan	Expected normal lifespan	Not reported
Lifespan After CD34+ HSC Engraftment	Up to 7 months reported. High chimeric ratio mice develop anemia after engraftment. ²	Up to 4 months reported. Mice develop severe, eventually fatal anemia after engraftment. ⁵⁻⁷	3 weeks after engraftment reaches 10-20% chimerism in peripheral blood if pre-conditioned with irradiation (~10-12 weeks post-engraftment); lifespan may be prolonged by using less potent stem cells, lower cell numbers, or avoiding pre-conditioning. ⁸
Other Comments	Stable engraftment through lifespan of mouse	Loss of human graft after 3-4 months ⁵	
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 10 The Jackson Laboratory website: www.jax.org/strain/017712

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