



Human neutrophils — now experimentally testable *in vivo*

A human G-CSF NOG mouse model that supports human neutrophils for translational drug development.

In standard humanized mouse models, human neutrophils are typically too rare or transient to support meaningful *in vivo* experimentation. In the **hG-CSF KI NOG model**, genetic integration of human G-CSF with disruption of murine G-CSF signaling enables reproducible generation of human neutrophils following engraftment with human CD34⁺ hematopoietic stem cells. This creates a defined experimental window for direct interrogation of human neutrophil biology. Within approximately 4–8 weeks post-engraftment, human neutrophils are present at measurable levels and exhibit maturity markers consistent with experimental use.

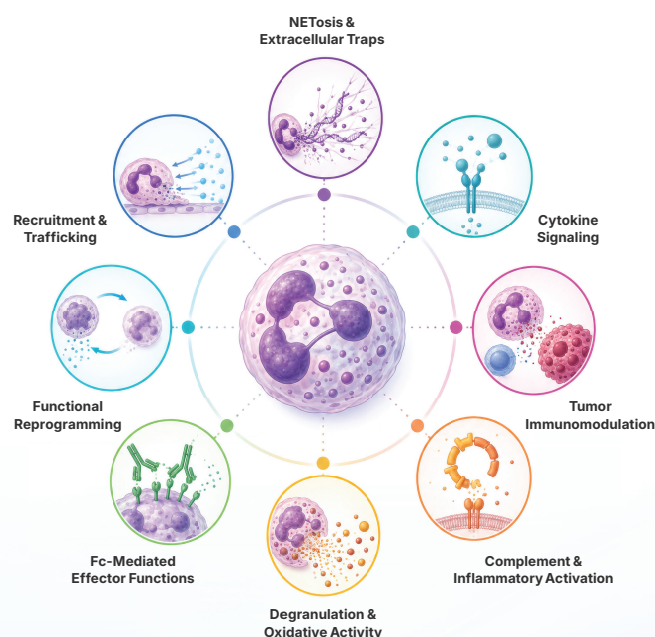
The **hG-CSF KI huNOG** enables *in vivo* investigation of human neutrophil-dependent mechanisms relevant to drug discovery, including:

- ▶ **Neutrophil recruitment and trafficking**—chemokine-driven migration and tissue infiltration
- ▶ **Neutrophil activation and effector functions**—context-dependent inflammatory signaling and functional state modulation
- ▶ **Neutrophil-associated tissue injury pathways**—mechanisms linked to NET formation, protease activity, or inflammatory damage human liver chimerism.

Together, these features support mechanism-focused evaluation of neutrophil-targeted therapeutic approaches using human neutrophils rather than murine surrogates, within a defined early study window.

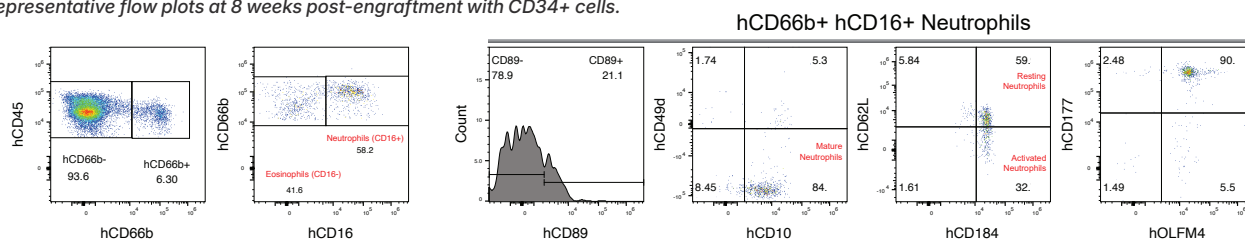
Neutrophil-Targeted Therapeutic Strategies

Overview of key pathways actively explored in neutrophil-focused drug discovery and development.



PERIPHERAL BLOOD NEUTROPHIL SUBSETS IN hG-CSF KI huNOG

Representative flow plots at 8 weeks post-engraftment with CD34⁺ cells.



CHARACTERIZATION HIGHLIGHTS (hG-CSF KI huNOG)

- ▶ Achieves robust human leukocyte engraftment, with the majority of animals exceeding 25% hCD45⁺ cells by ~4 weeks post-engraftment
- ▶ Exhibits elevated human neutrophil frequencies and absolute counts compared to huNOG-EXL
- ▶ Generates mature human neutrophil populations, including CD16⁺ CD89⁺ subsets
- ▶ Demonstrates a higher human-to-murine granulocyte ratio relative to huNOG-EXL
- ▶ Shows accelerated early human immune kinetics, supporting short-term neutrophil-focused studies

* T-cell presence is observed; however, T-cell kinetics and functionality are variable. This model is more suitable for neutrophil-centric investigations rather than comprehensive adaptive immune studies.



Study human neutrophils now with hG-CSF KI NOG.
Speak with a scientist about your neutrophil and *in vivo* research needs. Scan QR code to access detailed model data and to learn more.



Choose the right model for your neutrophil research

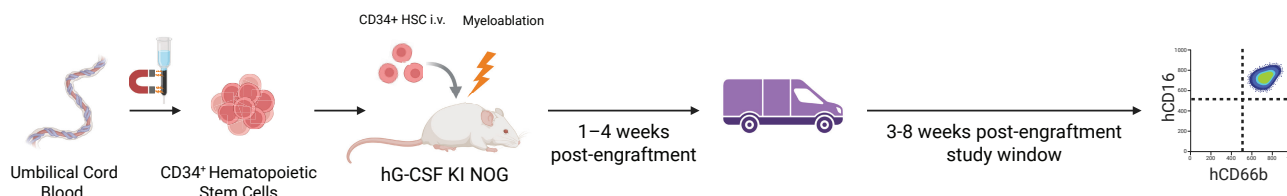
hG-CSF KI NOG (MODEL #23225)

- ▶ Base genetically humanized mouse model expressing human G-CSF on a NOG background. Human G-CSF is knocked into the murine G-CSFR locus, thus rendering murine cells incapable of responding to G-CSF.
- ▶ Best suited for investigators seeking custom engraftment strategies and flexible study design for neutrophil-focused research.

hG-CSF KI huNOG (MODEL #HSCCB-23225)

- ▶ CD34⁺ humanized hG-CSF KI NOG mouse model engrafted with human hematopoietic stem cells.
- ▶ Designed for rapid initiation of short-window neutrophil studies and early translational pharmacology.

OVERVIEW OF HEMATOPOIETIC STEM CELL ENGRAFTMENT IN hG-CSF KI huNOG

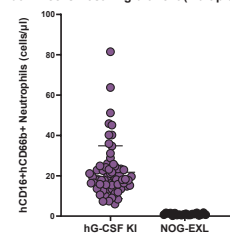


HUMAN IMMUNE CELL FEATURES IN CD34⁺-ENGRAFTED hG-CSF KI huNOG

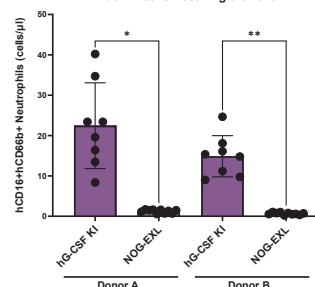
Human Cell Type	huNOG	huNOG-EXL	hG-CSF KI huNOG
T cells	High	High	High*
B cells	Moderate	Moderate	Moderate
NK cells	Low	Moderate	Low-Moderate
Monocytes	Low	Moderate	Moderate
Neutrophils	Very low	Low	High

Qualitative summary of relative human immune cell representation following CD34⁺ engraftment.

Peripheral Blood Neutrophils at 4 Weeks Post-Engraftment (Multiple Donors)



Peripheral Blood Neutrophils by Donor at 4 Weeks Post-Engraftment



TYPICAL STUDY WORKFLOW

- 1 Select base or humanized hG-CSF KI NOG model
- 2 Engraftment with human CD34⁺ hematopoietic stem cells
- 3 Assessment of human neutrophils at approximately 4 weeks post-engraftment
- 4 Neutrophil-centric experimental studies conducted within the 3-8 week post-engraftment window*

*Immune kinetics may vary depending on donor source and experimental conditions.

hG-CSF KI huNOG CONSIDERATIONS

Best suited for:

- ▶ Short-term neutrophil-focused studies
- ▶ Mechanistic and pharmacologic evaluation of neutrophil-targeted therapeutics

Not intended for:

- ▶ Long-term immune system reconstitution studies
- ▶ T-cell-driven biology or extended immune durability assessments

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Scan QR code to access detailed model data and to learn more.

Get in touch for more information about our products and services.

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