
Anti-human CD117 antibody-mediated bone marrow niche clearance in nonhuman primates and humanized NSG mice.

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Public Summary:

Successful engraftment of blood forming stem cells into recipients requires overcoming barriers that hinder access of stem cells to specialized niches in bone marrow. Doctors must currently use toxic chemotherapy and/or radiation to reduce these barriers to allow stem cells to engraft. Targeted elimination of recipient blood stem cells to achieve niche clearance would substantially reduce the morbidity and mortality of transplantation. We previously showed in mice that an anti-mouse antibody that targets a molecule called CD117 is able to safely deplete recipient blood stem cells and allow donor stem cells to engraft in mice with impaired immunity. In this report we show that a clinic-ready anti-human CD117 antibody called AMG 191 has significant activity against human and non-human primate (NHP) blood stem and progenitor cells. AMG 191 transiently and potently depletes the blood stem and progenitor cells in the bone marrow of NHP, and facilitates replacement by donor stem cells in mice that have been transplanted with human blood stem cells. Our data support the use of AMG 191, as a new class of biologic agent that safely targets recipient stem and progenitor cells to permit therapeutic stem cell replacement.

Scientific Abstract:

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