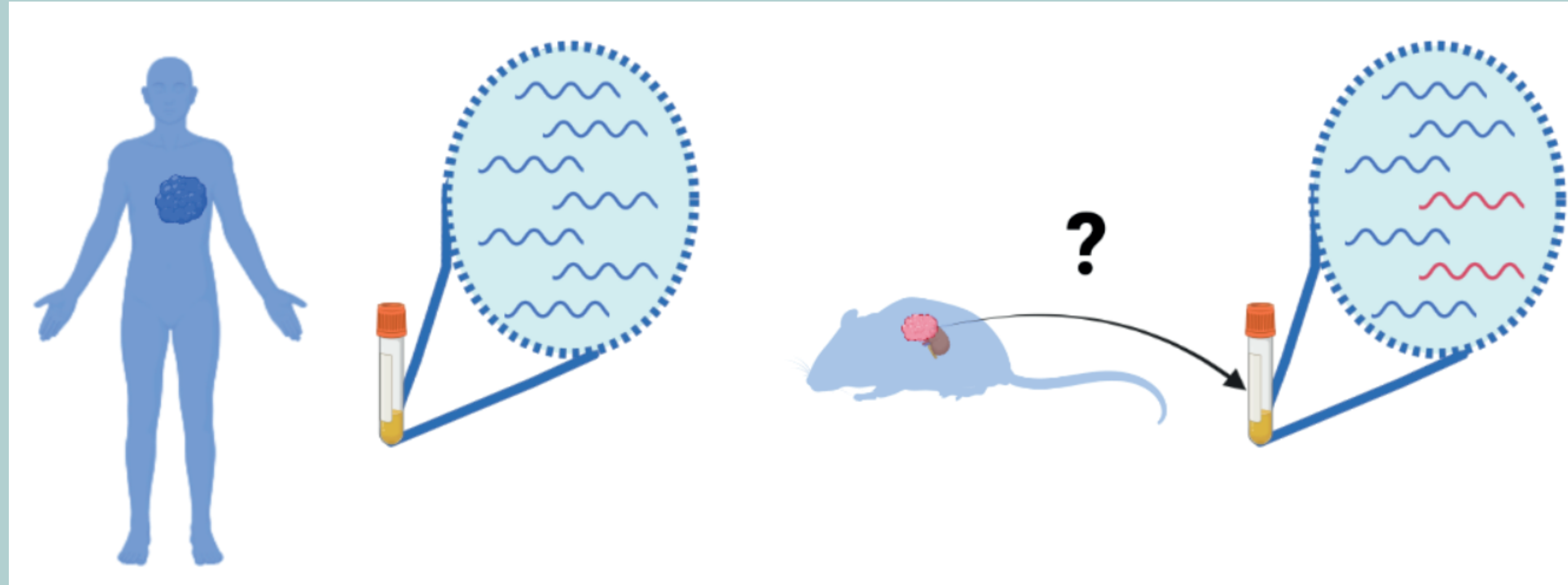


Exploration of neuroblastoma xenograft models for the analysis of tumoral cell-free RNA in murine blood plasma

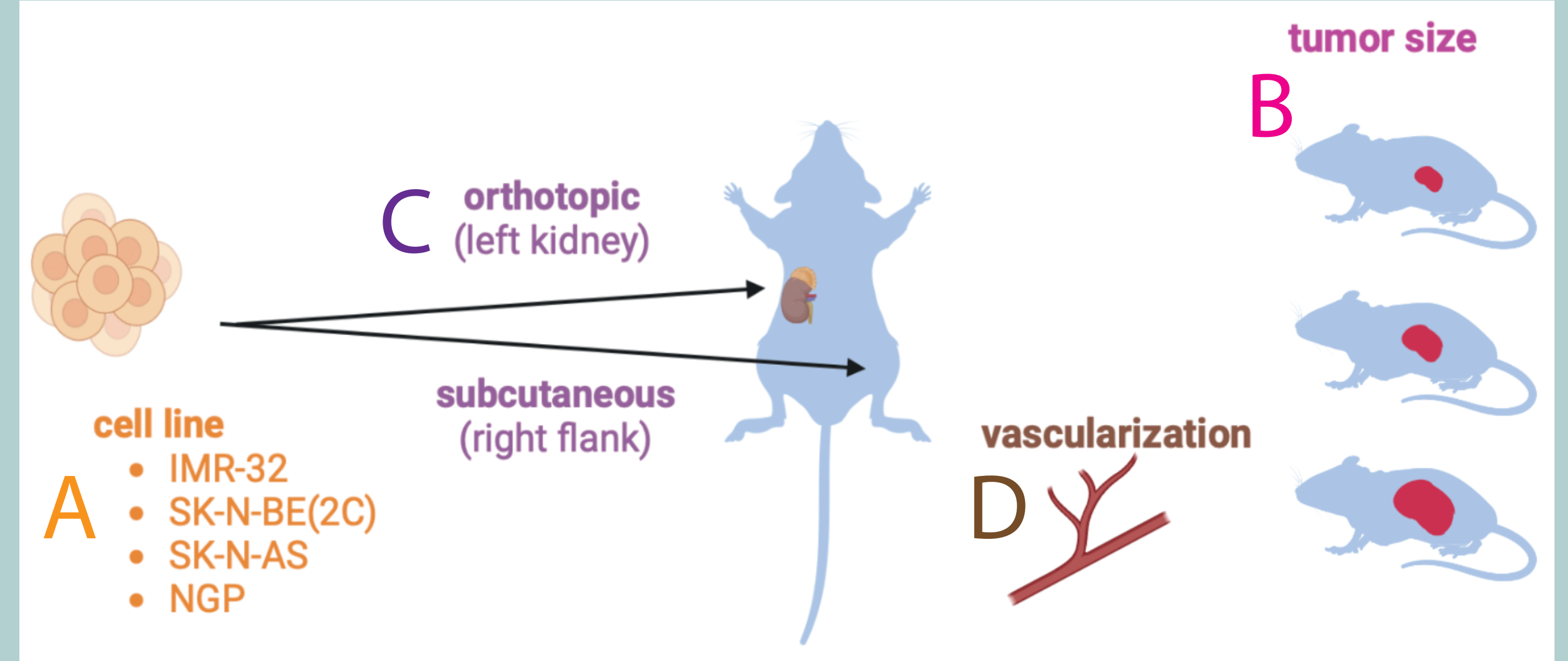
Hanne Van Droogenbroeck^{1,2†}, Jill Deleu^{1,2†}, Jasper Anckaert^{1,2}, Jilke De Wilde^{2,3}, Kaat Durinck^{2,4}, Liselot Mus^{2,4,5}, Justine Nuytens^{1,2}, Muhammad Rishfi^{2,4}, Kathleen Schoofs^{1,2,6}, Frank Speleman^{2,4}, Maaïke Van Trimpont^{2,7,8}, Kimberly Verniers^{1,2}, Nurten Yigit^{1,2}, Anneleen Decock^{1,2}, Jo Vandesompele^{1,2*}, Bram De Wilde^{1,2,4,5†} and Tom Van Maerken^{1,2,9†}

[†] shared contributions

¹OncoRNALab, Cancer Research Institute Ghent (CRIG), Ghent, Belgium, ²Department of Biomolecular Medicine, Ghent University, Ghent, Belgium, ³Department of Pathology, Ghent University Hospital, Ghent, Belgium, ⁴Pediatric Precision Oncology Lab (PPOL), Cancer Research Institute Ghent (CRIG), Ghent, Belgium, ⁵Department of Paediatric Haematology Oncology and Stem Cell Transplantation, Ghent University Hospital, Ghent, Belgium, ⁶Translational Oncogenomics and Bioinformatics Lab, Cancer Research Institute Ghent (CRIG), Ghent, Belgium, ⁷Department of Diagnostic Sciences, Ghent University, Ghent, Belgium, ⁸Lab Normal and Malignant Hematopoiesis, Cancer Research Institute Ghent (CRIG), Ghent, Belgium, ⁹Department of Laboratory Medicine, AZ Groeninge, Kortrijk, Belgium

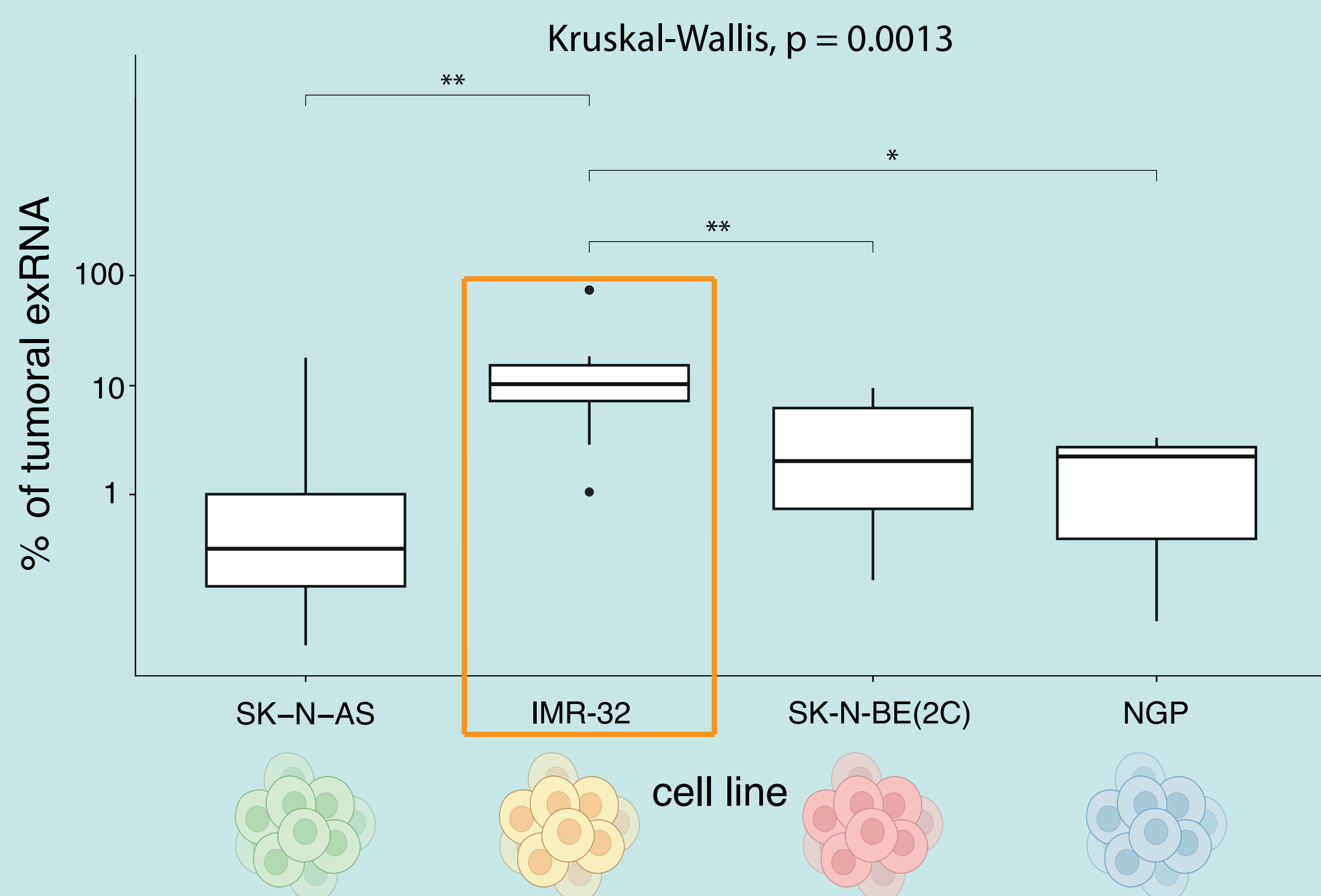


While xenografts are well suited to discern tumoral (human) from host (murine) RNA, it remains unclear which factors influence release of tumor RNA.



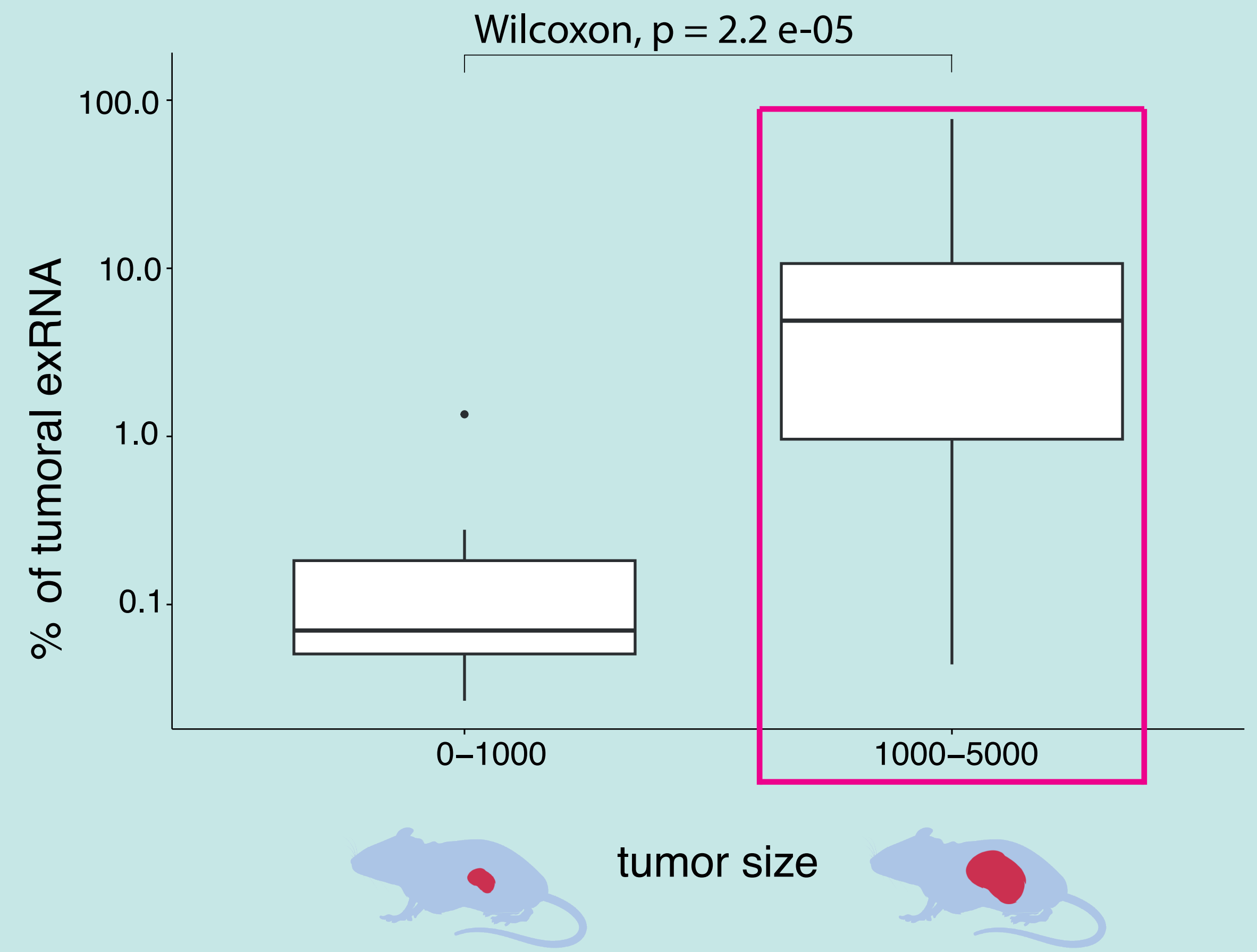
We studied the effect of cell line (A), tumor size (B), injection site (C), and vascularization (D) on exRNA shedding of tumor into blood plasma.

A. cell line



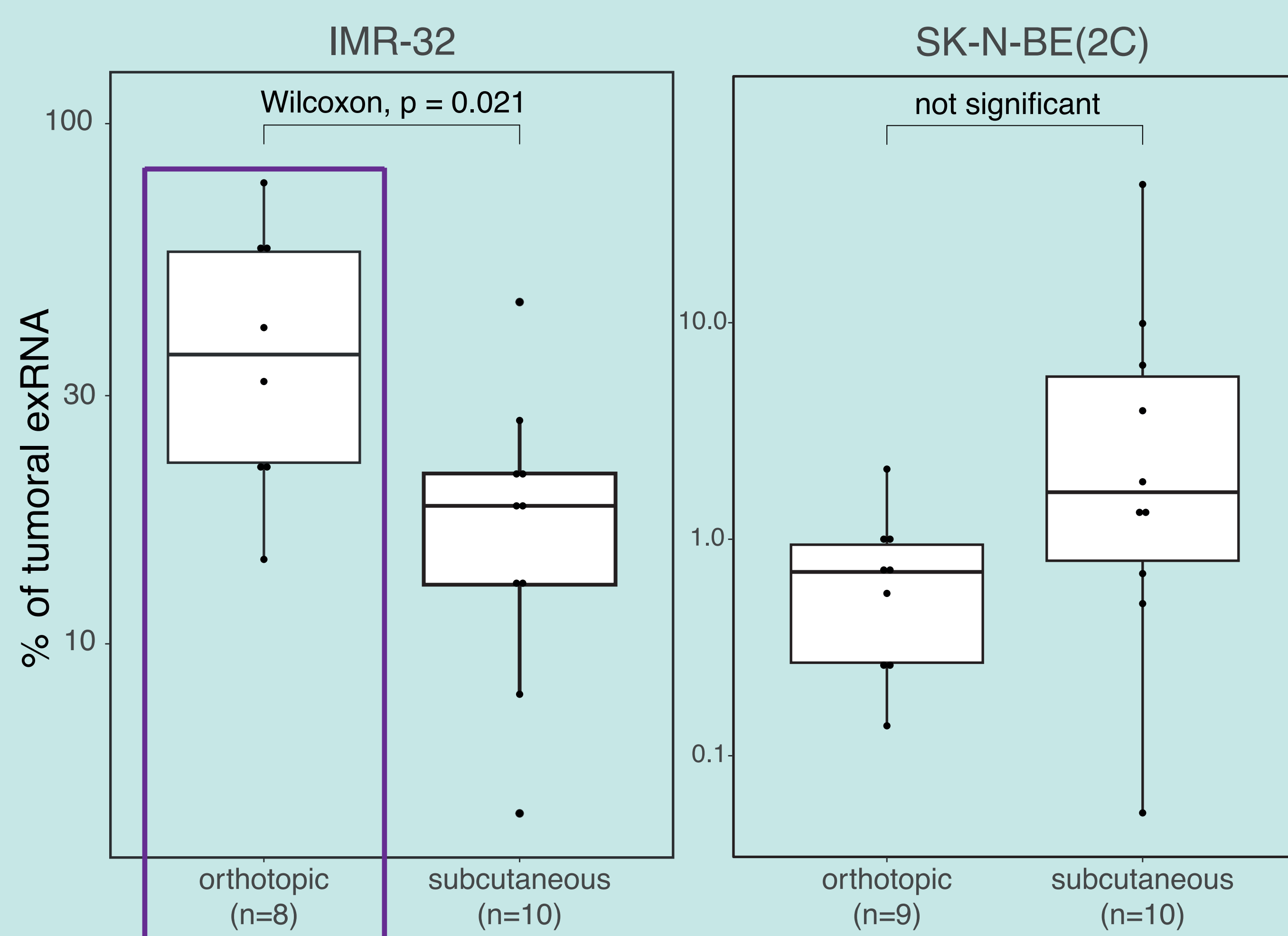
Xenografts derived from IMR-32 have a significantly higher proportion of tumoral exRNA in the plasma.

B. tumor size



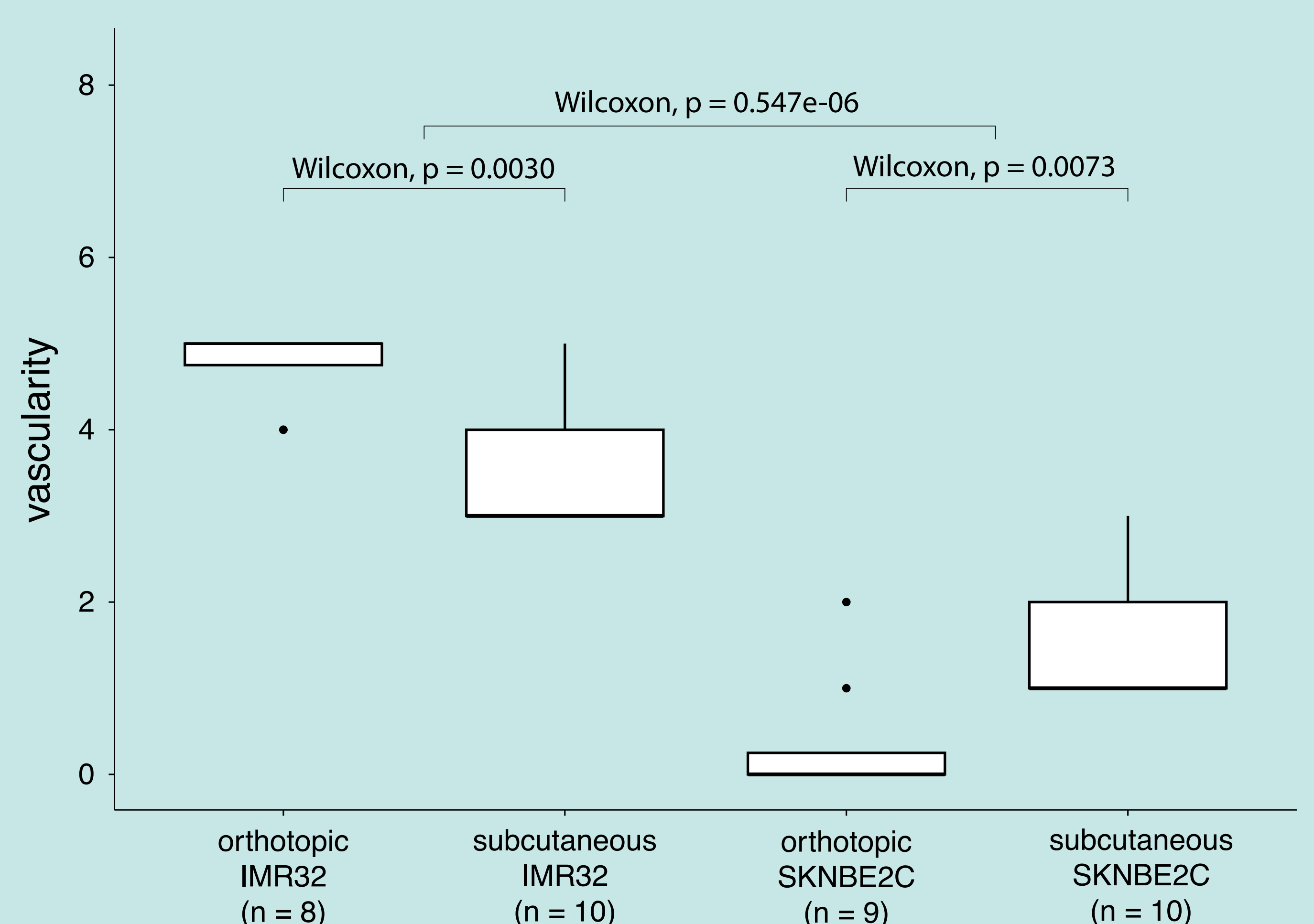
A tumor size of minimal 1000 mm³ is required to detect sufficient tumoral exRNA.

C. injection site



Orthotopic implantation of IMR-32 cells increases the amount of tumoral exRNA in plasma, no difference for SK-N-BE(2C) cells.

D. vascularization



Higher vascularity correlates with higher % of tumoral exRNA ($R^2 = 0.76$, $p = 0.18 \times 10^{-5}$).