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

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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

![Box plot comparison of cell lines](image)

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

B. tumor size

![Box plot of tumor size](image)

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

C. injection site

![Box plot comparison of injection sites](image)

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

D. vascularization

![Box plot of vascularization](image)

Higher vascularity correlates with higher % of tumoral exRNA ($R^2 = 0.76, p = 0.18e-05$).