

Supplementary material to

Evaluation of a 3D osteosarcoma model:

Experimental studies and mathematical modelling of drug response

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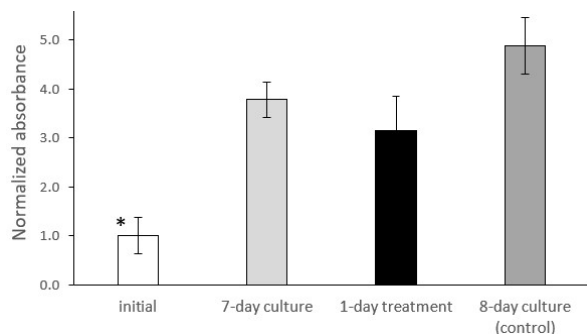


Figure S1. Absorbance values normalized to the corresponding initial scaffolds cultured statically for 24 h after seeding, shown for initial scaffolds ($n = 2$), scaffolds cultured for 7 days under perfusion conditions ($n = 2$), scaffolds treated with doxorubicin for one day ($n = 3$), and untreated ctrl scaffolds ($n = 2$) (*indicates a statistically significant difference between the initial group and each of the other groups)

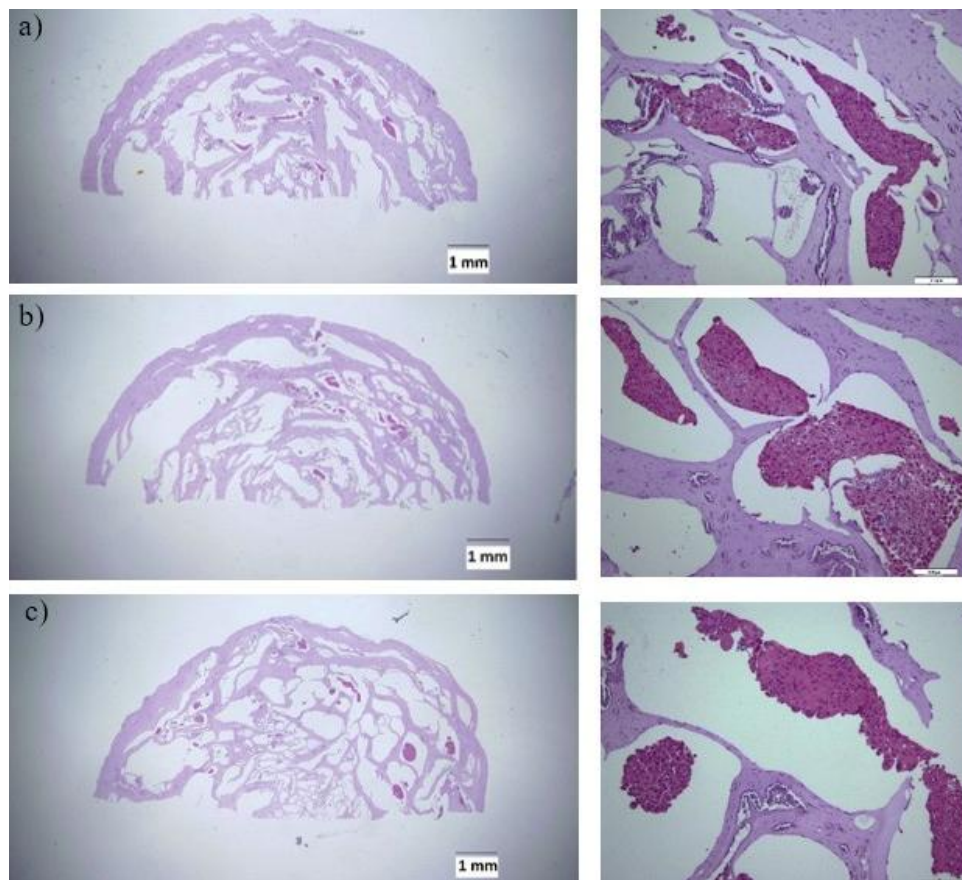


Figure S2. Histological cross-sections of scaffolds: a) cultured for 7 days under bioreactor conditions; b) treated with doxorubicin for one day; c) control (untreated) scaffold cultured for a total of 8 days under bioreactor conditions (left panels: half cross-sections; right panels: representative regions at higher magnification, scale bar = 100 µm; H&E stain)

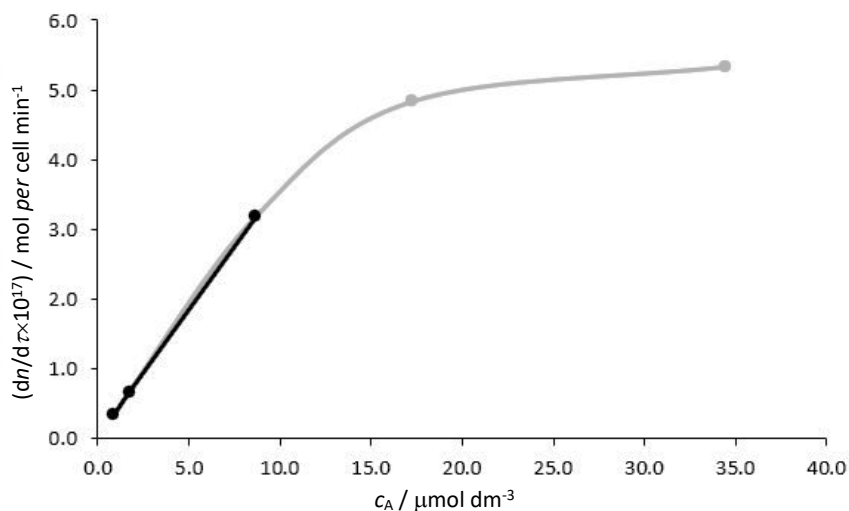


Figure S3. Doxorubicin uptake rate as a function of the initial doxorubicin concentration, derived from literature data [1], where uptake was quantified as the amount of intracellular doxorubicin per cell after 3 h of incubation.

A linear correlation between doxorubicin concentration and cellular uptake rate was observed at lower doxorubicin concentrations (up to $\sim 9 \text{ mol dm}^{-3}$), following the apparent first-order kinetics. Therefore, the uptake rate constant, k , was determined as the slope of the linear region of the correlation.

REFERENCE

- [1] Eliaz RE, Nir S, Marty C, Szoka FC. Determination and modeling of kinetics of cancer cell killing by doxorubicin and doxorubicin encapsulated in targeted liposomes. *Cancer Res.* 2004; 64(2): 711-718. <https://doi.org/10.1158/0008-5472.can-03-0654>