

3D Fluid-Dynamic Ovarian Cancer Model Resembling Systemic Drug Administration for Efficacy Assay

Supplementary Data

Supporting Information

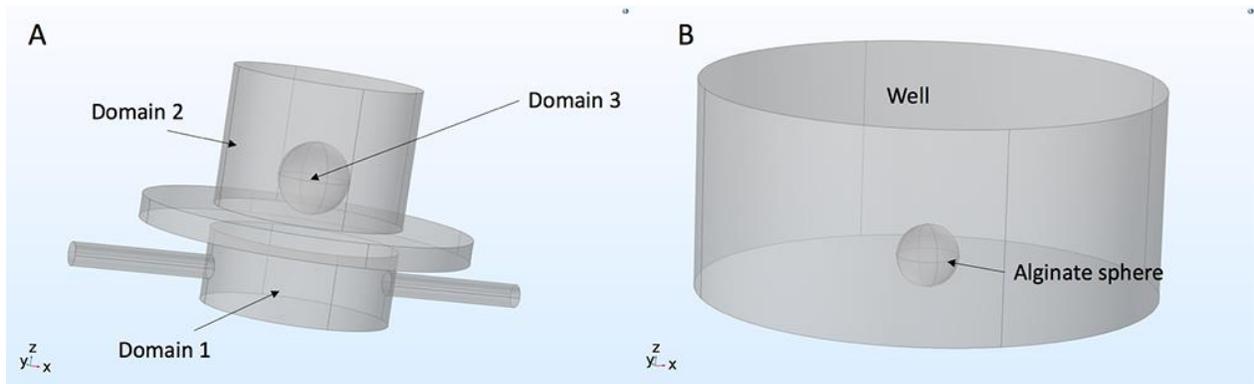


Fig. S1: Schematic representation of the 3D domains used during the simulations

(A) MIVO® bioreactor set-up in dynamic condition; (B) geometrical configuration used for the simulations in static condition within the well.

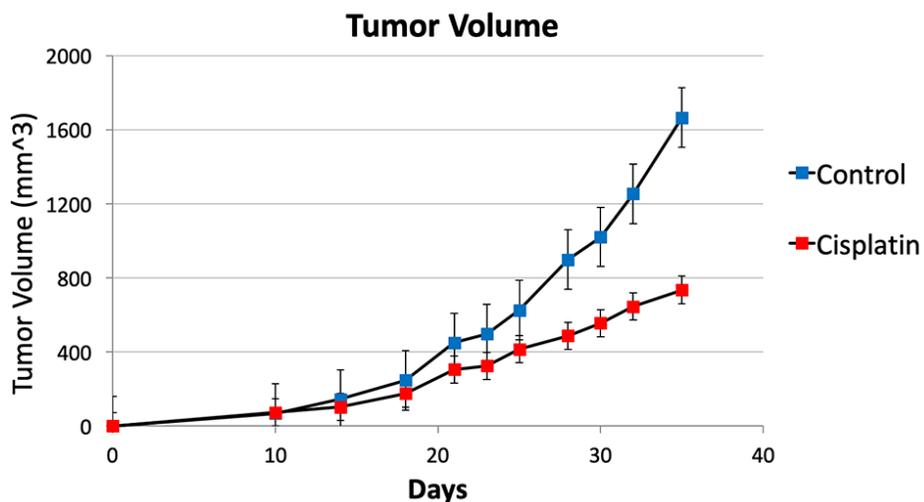


Fig. S2: Tumor volume in mouse xenograft model after 6 mg/kg cisplatin treatment in comparison with control (sham treated mice, N = 6)

Values are reported as mean \pm SEM.

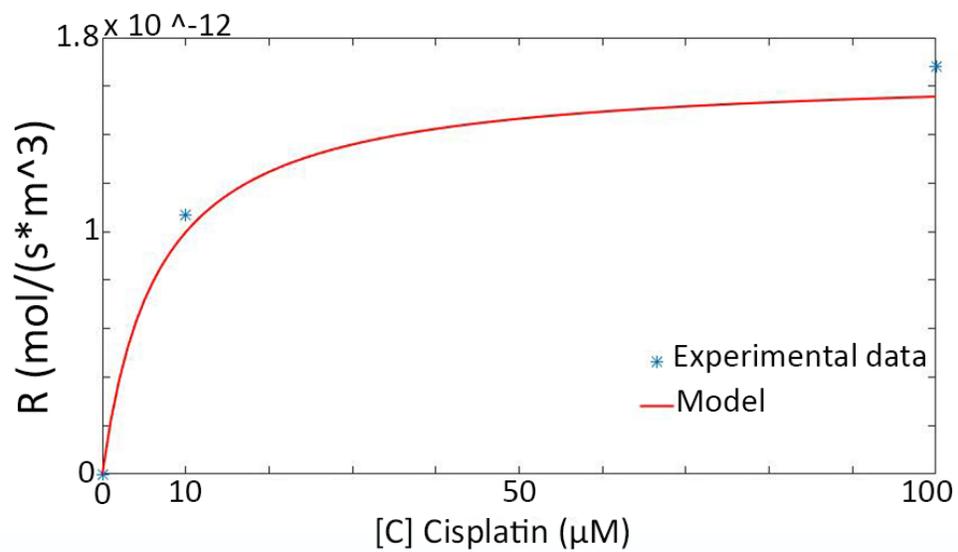


Fig. S3: Kinetics of cisplatin consumption within the hydrogel

Comparison between the theoretical model and the experimental data, where R is the reaction term defined according to the Michaelis-Menten kinetics (N = 3 biological replicates).

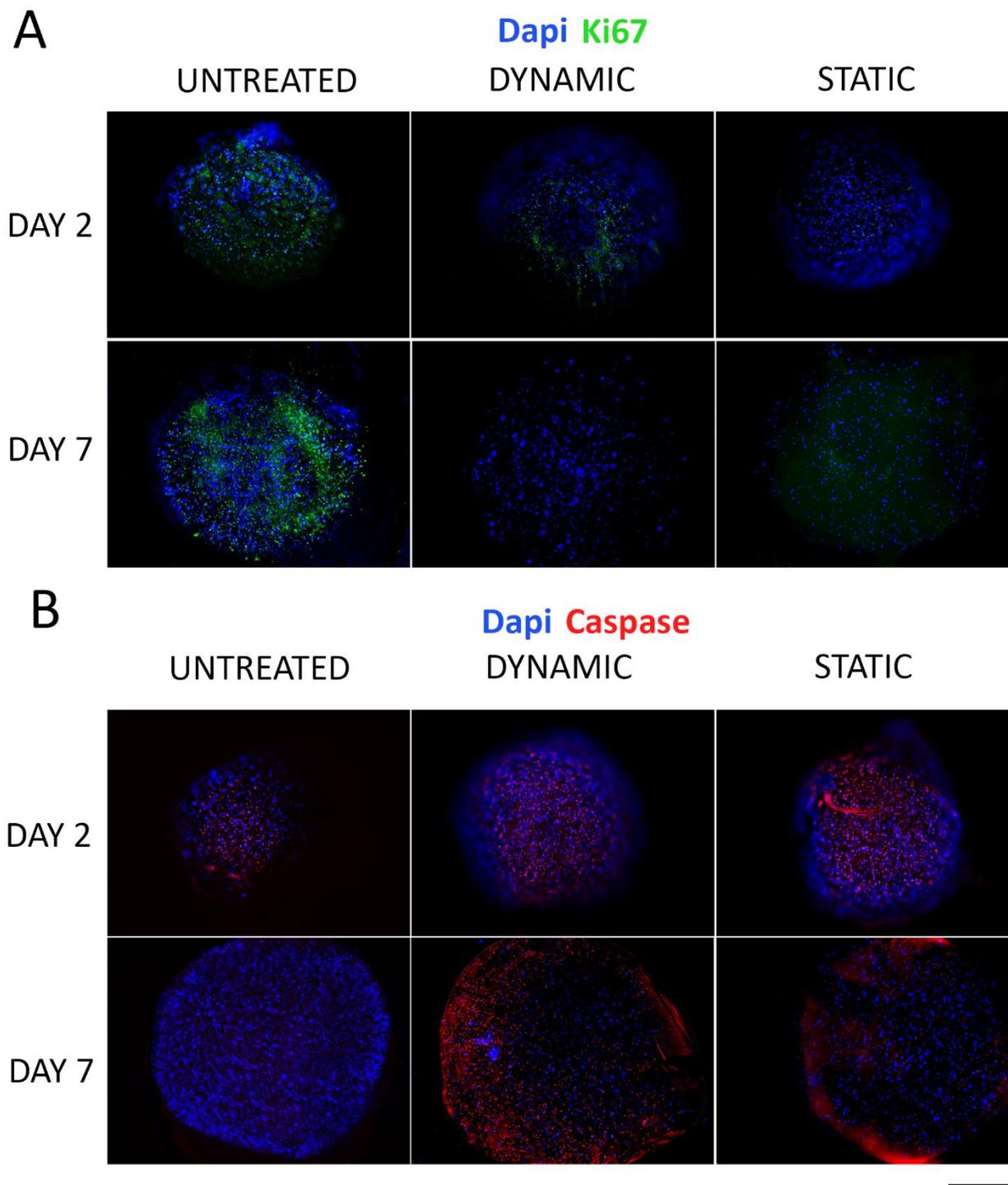


Fig. S4: Fluorescence images showing immunostaining of Ki67 (green) as index of proliferation and caspase-3 (red) as marker of apoptosis of SKOV-3 cultured within alginate hydrogels without drug and cultured in static and in dynamic conditions with cisplatin 100 μ M.

Cells were stained after 2 or 7 days and counter-labeled with DAPI (blue). Untreated controls were cultured in static conditions. Scale bar is 500 μ m. (N = 3 biological replicates; n = 2 technical replicates).

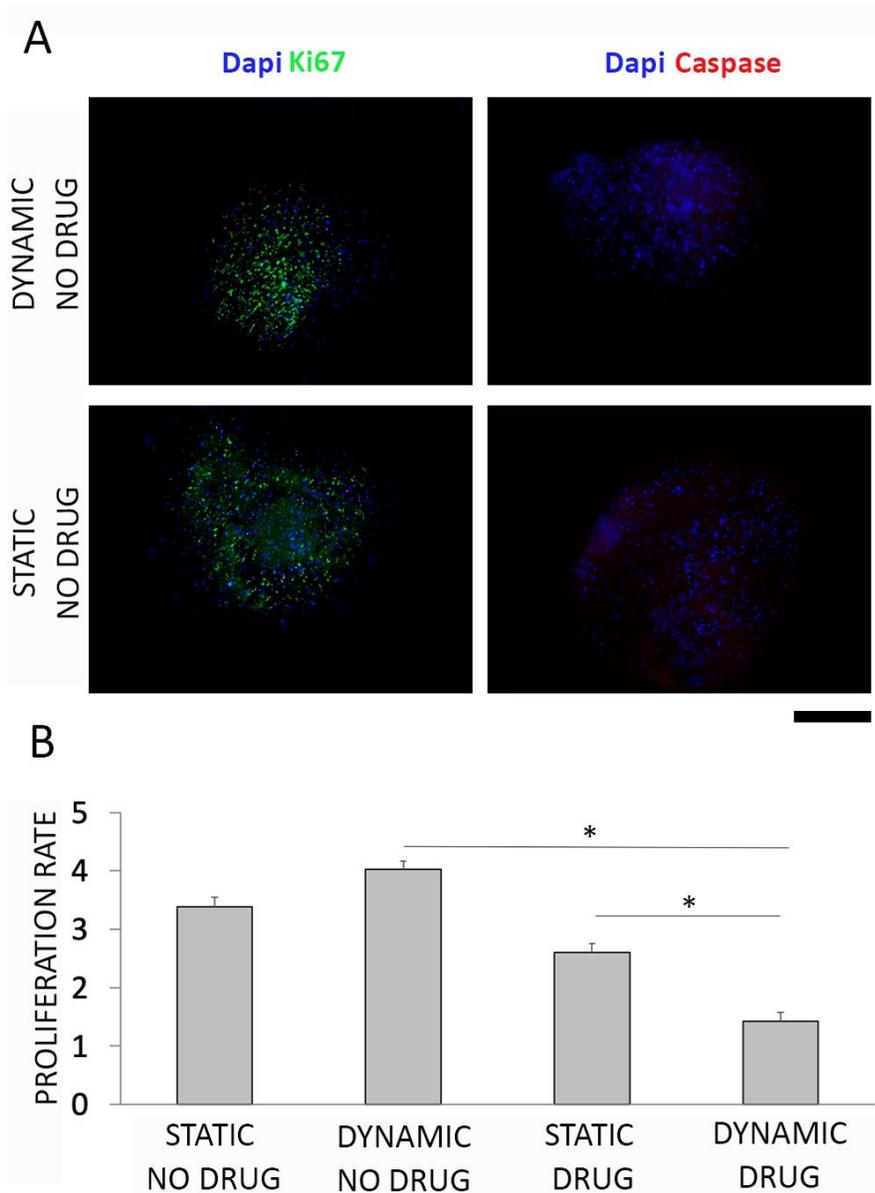


Fig. S5: Comparison of markers of proliferation and apoptosis between dynamic and static culture without drug
 (A) Fluorescence images showing immunostaining of Ki67 (green) as index of proliferation and caspase-3 (red) as marker of apoptosis of SKOV-3 cultured for 7 days within alginate hydrogels without drug in static and in dynamic conditions, respectively. Cells were counter-labeled with DAPI (blue). Scale bar is 500 μ m (N = 3 biological replicates; n = 2 technical replicates). (B) Comparison of the proliferation rate (assessed through Alamar Blue assay) of ovarian cancer cells embedded in alginate hydrogels cultured without and with 10 μ M cisplatin in static and dynamic conditions. Values are reported as mean \pm SD. Student's paired T-test was performed to compare respectively the following conditions: dynamic no drug vs dynamic drug to evaluate the effects of the drug in a dynamic context; dynamic drug vs static drug to evaluate the effect of the dynamic culture; dynamic no drug vs static no drug to evaluate the effects of the dynamic culture without drug, *, P < 0.05, (N = 3 biological replicates; n = 2 technical replicates).

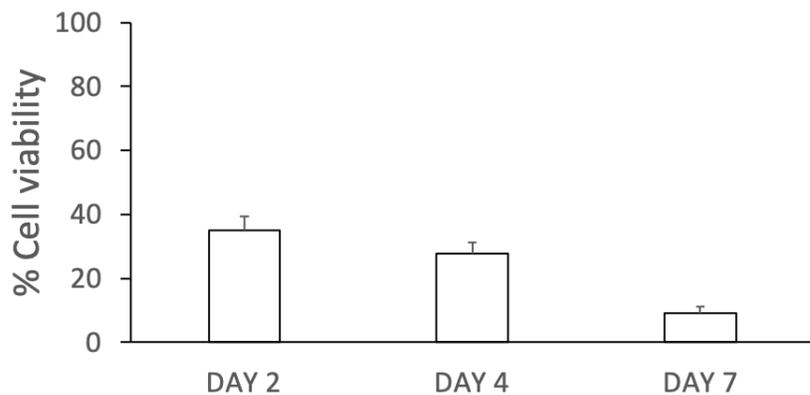


Fig. S6: Cell viability of SKOV-3 cultured in 2D conditions treated with 10 μ M cisplatin assessed by Alamar Blue assay
Cell viability was derived as % of live cells normalized to untreated controls. Values are reported as mean \pm SD (N = 3 biological replicates; n = 2 technical replicates).