

**Live cell mass accumulation measurement non-invasively predicts carboplatin sensitivity in triple-negative breast cancer patient-derived xenografts**

Graeme F. Murray<sup>1</sup>, Tia H. Turner<sup>2,4</sup>, Kevin A. Leslie<sup>1</sup>, Mohammad A. Alzubi<sup>2</sup>, Daniel Guest<sup>1</sup>, Sahib S. Sohal<sup>2</sup>, Michael A. Teitel<sup>3</sup>, J. Chuck Harrell<sup>2,4,5</sup>, and Jason Reed<sup>1,5\*</sup>

<sup>1</sup>Department of Physics, Virginia Commonwealth University, 701 W Grace St, Richmond, VA 23284, USA

<sup>2</sup>Department of Pathology, Virginia Commonwealth University, 401 N 13<sup>th</sup> St. Richmond, VA 23298, USA

<sup>3</sup>Department of Pathology and Laboratory Medicine, University of California Los Angeles, 757 Westwood Plaza, Los Angeles, CA 90095, USA

<sup>4</sup>Wright Center for Clinical and Translational Research, Virginia Commonwealth University, 1200 E. Clay St, Richmond, VA 23298, USA

<sup>5</sup>Massey Cancer Center, Virginia Commonwealth University, 401 College St. Box 980037, Richmond, VA, USA

\*Correspondence should be addressed to [jcreed@vcu.edu](mailto:jcreed@vcu.edu)

**SUPPLEMENTARY INFORMATION**

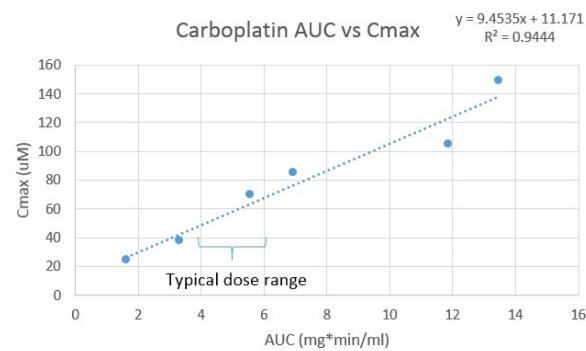
**Figures**

Supplementary Figure 1. Relating patient dose ranges to in vivo concentrations in mice and in vitro maximum concentrations.

**References**

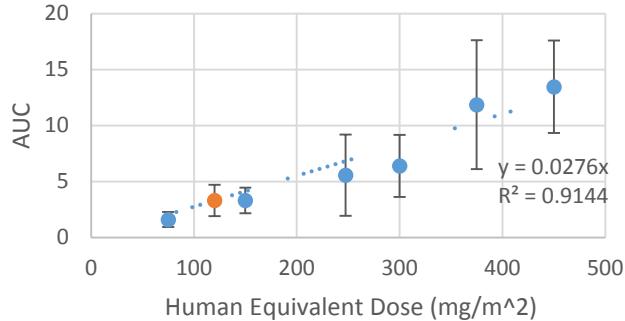
## FIGURES

a)



Human Equivalent Dosing of 40 mg/kg carboplatin in mice

b)



**Figure S1.** Relating patient dose ranges to in vivo concentrations in mice and in vitro maximum concentrations. a) Carboplatin is excreted renally and therefore dosed in patients using area under the curve (AUC) dosing. Typical ranges in patients are 4-6 mg\*min/ml. Using data from Oguri et al<sup>1</sup> and Nair et al<sup>2</sup>, the AUC dosing was related to the maximum concentration in the plasma of 59 patients and b) 40 mg/kg dosing in mice was related to AUC dosing in humans.

## REFERENCES

1. Oguri, S.; Sakakibara, T.; Mase, H.; Shimizu, T.; Ishikawa, K.; Kimura, K.; Smyth, R. D., Clinical Pharmacokinetics of Carboplatin. *The Journal of Clinical Pharmacology* **1988**, 28 (3), 208–215.
2. Nair, A. B.; Jacob, S., A simple practice guide for dose conversion between animals and human. *Journal of basic and clinical pharmacy* **2016**, 7 (2), 27–31.