Additional file 3: Tumor cost from oxygen consumption increase

In Koea and Shaw [1], oxygen consumption (μmol / kg min) as a function of tumor bulk (g) is given. The slope is 41 μmol / kg tumor/ min/kg patient (r^2=0.79). To convert this into the cost of cancer as a function of tumor bulk in kcal/kg tumor/day/kg patient, the oxygen consumption per tumor bulk (μmol / kg tumor/ min/kg patient) is converted to ml oxygen/kg tumor/min/kg patient) using the conversion 0.022391 ml = μmol O_2. This is converted to kJ/kg tumor/min/kg patient by the conversion 21.1 kJ/ O_2 [2]. This is converted to kcal/kg tumor/day/kg patient using standard conversions. As patient mass was not given in this study, converting this value precisely to kcal/kg tumor/day was not possible; however we assume average patient weight was between 60 and 70 kg [3] to offer a range of values of tumor cost in kcal/kg tumor/day.

References

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3. Xu WP, Cao DX, Lin ZM, Wu GH, Chen L, Zhang JP, Zhang B, Yang ZA, Jiang Y, Han YS, et al: **Analysis of energy utilization and body composition in kidney, bladder, and adrenal cancer patients.** *Urologic oncology* 2012, **30:**711-718.