Background: The Australian and New Zealand Urogenital and Prostate Cancer Trials Group (ANZUP) is conducting a randomized trial of accelerated versus standard BEP chemotherapy for intermediate and poor risk metastatic GCTs. This translational substudy will prospectively collect blood and GCT tissue in a centralized biobank.

Overall aim: To identify pharmacogenomic and molecular markers of treatment failure, toxicity and overall survival in metastatic GCTs. This could lead to the design of tailored treatments, for example incorporating a higher dose of or an alternative form of chemotherapy.

Trial design: Specific objectives: 1. Consent ≤ 500 individuals in our trial for donation of blood and cancer tissue samples for future genomic analyses. 2. Collect, process and freeze participant blood (50mL) as whole blood, plasma and serum pre-chemotherapy. 3. Collect a representative formalin fixed paraffin embedded (FFPE) block of participant tumour tissue. 4. Transport blood and cancer tissue samples to the Chris O’Brien Lifehouse cryostorage facility in Sydney, Australia. 5. Establishment of a national biobank for testicular cancer. Planned future objectives: Study association of progression (relapse or refractory disease), overall survival and toxicity (as surrogates for excess drug exposure) with genetic polymorphisms known to be involved in: - bleomycin metabolism: BLMH (bleomycin hydrolase gene) variant A1450G SNP - etoposide metabolism and transport: ABCB1 (3435T variant), CYP3A5 - candidate tumour-related markers including DNA methylation profiles of cancer-related genes.

Conclusions: The ultimate goal of this research is to facilitate a "personalised medicine" approach to the treatment of individuals with advanced germ cell tumours (GCT), with the ultimate goal of curing 100% of patients. We invite researchers with blood or tumour samples, and/or expertise in relevant laboratory techniques to collaborate in future analyses. Email: p3BEP@ctc.usyd.edu.au website: http://www.anzup.org.au

Disclosure: All authors have declared no conflicts of interest.