[Session P03 - Internal Organs & Endocrinology (Lung, Kidney, Liver, Gastrointestinal)](https://www.abstractsonline.com/pp8/%22%20%5Cl%20%22%21/9102/session/82)

**P03.45.C - Telomere length (TL) and oxidative stress in C57BL/6J mice**

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**Disclosures**

 **E. Kidd:** None. **J. Pender:** None. **M.J. Gatt:** None. **J. Williams:** None. **A.A.I.F. Blakemore:** None. **E. Meimaridou:** None. **A.J. Walley:** None. **U.L. Fairbrother:** None.

**Abstract**

High levels of oxidative stress may lead to an increased rate of telomere shortening and contribute to loss of telomere integrity. Most in vivo studies have looked for correlations between biomarkers of oxidative stress and TL, and have used leucocytes. We have used a murine model to investigate the potential impact of oxidative stress on TL in a tissue-specific manner and to assess telomere oxidation directly. Our model is a C57BL/6J mouse strain with a naturally occurring nicotinamide nucleotide transhydrogenase (NNT) deficiency. The absence of Nnt results in high levels of reactive oxygen species (ROS) in cells. DNA was extracted from healthy control mice, Nnt-deficient mice and Nnt-rescued mice (Nnt reinserted at the blastocyst stage) and their telomeres analysed. Two qPCR methods were used: mmQPCR to assess relative telomere length (RTL), and a formamidopyrimidine DNA glycosylase (FPG) enzyme-based qPCR method to directly determine the extent of telomere oxidation. Analysis of RTL from kidney revealed no significant difference (p>0.05) between the three groups. This is predictable since rapidly dividing leucocytes probably best represent early life replicative responses and tissues such as kidney, a slowly dividing tissue, represents the heritable load of TL. QPCR analysis of the DNA extracts, before and after FPG digestion showed there was no significant difference in the ΔCT values between the three groups (p>0.05), implying there was no discernible difference in telomere oxidation levels. Further analysis will investigate tissues with variable metabolic and cellular turnover rates such as the brain, spleen, liver, heart and adipose tissue.