

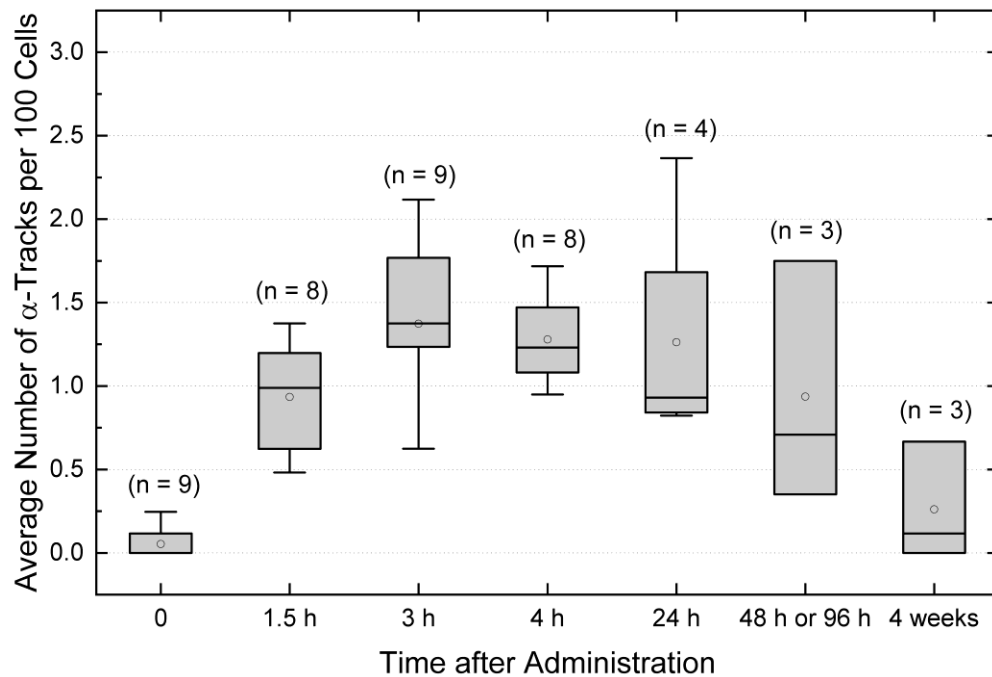
## $\alpha$ -particle-induced DNA damage tracks in peripheral blood mononuclear cells of $[^{223}\text{Ra}]\text{RaCl}_2$ -treated prostate cancer patients – Supplementary Material

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**Suppl. Figure 1:** Boxplot of the average number of  $\alpha$ -tracks per 100 cells at the different blood sampling time points. A significant increase of the average  $\alpha$ -track frequency was observed in the samples taken 1.5 h ( $p=0.008$ ), 3 h ( $p = 0.004$ ) and 4 h ( $p = 0.008$ ) after administration relative to baseline (0) and between 1.5 h and 3 h after administration ( $p = 0.008$ ).

**Suppl. Table 1:** Blood sampling time points, results of the activity measurements, the absorbed dose calculations and the enumeration of  $\alpha$ -tracks.

| Patient | Exact blood sampling time point: time after administration (h) | Activity concentration in the blood (Bq ml <sup>-1</sup> ) | Absorbed dose to the blood up to this time point (mGy) | Average number of $\alpha$ -tracks per 100 cells | SD of the average number of $\alpha$ -tracks per 100 cells |
|---------|--|--|--|--|--|
| P1      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.6  | 87.4   | 3.0  | 0.63   | 0.28   |
|         | 3.1  | 44.9   | 4.5  | 0.66   | 0.27   |
|         | 4.1  | 40.2   | 5.2  | 1.43   | 0.40   |
|         | 29.6   | 8.6  | 10.6   | 2.37   | 0.56   |
|         | 46.6   | 6.0  | 12.5   | 1.75   | 0.47   |
| P2      | before administration  | 0.0  | 0.0  | 0.12   | 0.12   |
|         | 1.50   | 46.3   | 1.4  | 0.85   | 0.32   |
|         | 3.22   | 32.1   | 2.4  | 1.77   | 0.44   |
|         | 4.08   | 24.5   | 2.8  | 1.72   | 0.46   |
| P3      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.50   | 38.3   | 1.1  | 1.18   | 0.37   |
|         | 3.00   | 24.5   | 1.8  | 1.38   | 0.41   |
|         | 4.05   | 21.1   | 2.2  | 1.34   | 0.39   |
| P4      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.50   | 20.0   | 0.6  | 0.48   | 0.24   |
|         | 3.08   | 12.0   | 1.0  | 2.12   | 0.51   |
|         | 4.10   | 11.6   | 1.2  | 0.95   | 0.34   |
| P5      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.00   | 45.2   | 0.9  | 0.50   | 0.25   |
|         | 2.08   | 25.5   | 1.5  | 0.59   | 0.26   |
|         | 3.32   | 18.2   | 1.9  | 1.25   | 0.40   |
| P6      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.53   | 33.6   | 0.9  | 1.13   | 0.38   |
|         | 2.98   | 21.3   | 1.6  | 1.23   | 0.39   |
|         | 4.00   | 19.4   | 1.9  | 1.52   | 0.42   |
| P7      | before administration  | 0.0  | 0.0  | 0.25   | 0.17   |
|         | 1.6  | 41.3   | 1.3  | 1.38   | 0.41   |
|         | 3.2  | 25.0   | 2.1  | 1.96   | 0.49   |
|         | 4.0  | 20.1   | 2.4  | 1.10   | 0.35   |
|         | 23.1   | 4.4  | 4.7  | 0.86   | 0.30   |
|         | 47.0   | 1.7  | 5.8  | 0.71   | 0.29   |
|         | 671.8  | -*   | 6.4  | 0.67   | 0.27   |
| P8      | before administration  | 0.0  | 0.0  | 0.00   | 0.00   |
|         | 1.5  | 27.7   | 0.8  | 0.62   | 0.28   |
|         | 2.9  | 17.4   | 1.3  | 0.63   | 0.28   |

|    |                       |      |     |      |      |
|----|-----------------------|------|-----|------|------|
|    | 4.0                   | 12.7 | 1.5 | 1.06 | 0.35 |
|    | 23.0                  | 1.7  | 2.6 | 0.82 | 0.31 |
|    | 95.0                  | 0.4  | 3.6 | 0.35 | 0.20 |
|    | 648.1                 | -*   | 4.0 | 0.00 | 0.00 |
| P9 | before administration | 0.0  | 0.0 | 0.12 | 0.12 |
|    | 1.7                   | 19.9 | 0.5 | 1.22 | 0.39 |
|    | 3.1                   | 14.3 | 0.9 | 1.38 | 0.41 |
|    | 4.2                   | 13.1 | 1.2 | 1.13 | 0.38 |
|    | 24.0                  | 4.2  | 3.8 | 1.00 | 0.35 |
|    | 723.9                 | -*   | -** | 0.12 | 0.12 |

\* Activity values for the time points 4 weeks after administration were not measured.

\*\* The total absorbed dose to the blood was not calculated due to the missing data at the time point 48 h or 96 h after administration.