Modelling the In Vivo and Ex Vivo DNA Damage Response after Internal Irradiation of Blood from Patients with Thyroid Cancer

Supplemental Data

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Patient Inclusion and Exclusion Criteria

1. Inclusion criteria

1.1. Able and willing to give signed informed consent

1.2. Age ≥ 18 years

1.3. Total thyroidectomy performed within a maximum of 6-8 weeks before radioiodine treatment

1.4. Histological evidence for differentiated thyroid carcinoma (DTC) (papillary, follicular variants) (histological variants of aggressive disease such as tall cell, columnar, hobnail, diffuse sclerosing variants will be excluded)

1.5. Tumor staging: T1b, T2, T3a, any N (in accordance with the 8th ed. of the AJCC/UICC TNM staging, 2017

1.6. No distant metastases (patients who will be diagnosed with distant metastases on the post-therapy scan will be replaced)

1.7. Clinical indication for I-131 therapy as determined by the attending physician based on the available clinical information

1.8. WHO score, ECOG score 0-2 (autonomous, self-caring)

1.9. No history of prior therapeutic radiation / radionuclide exposure

1.10. No history of chemotherapy

1.11. No medication known to interfere with iodine kinetics within the last 12 months

1.12. No amiodarone exposure in the last 24 months

1.13. No exposure to iodinated contrast agent in the last six months

1.14. No hemodialysis

2. Exclusion criteria:

2.1. Pregnancy (to be excluded by serum beta-HCG measurement in women of child-bearing age)

2.2. Lactation within the last 6 months

2.3. Participation in another clinical study within the last 6 months

2.4. current uncontrolled severe disease

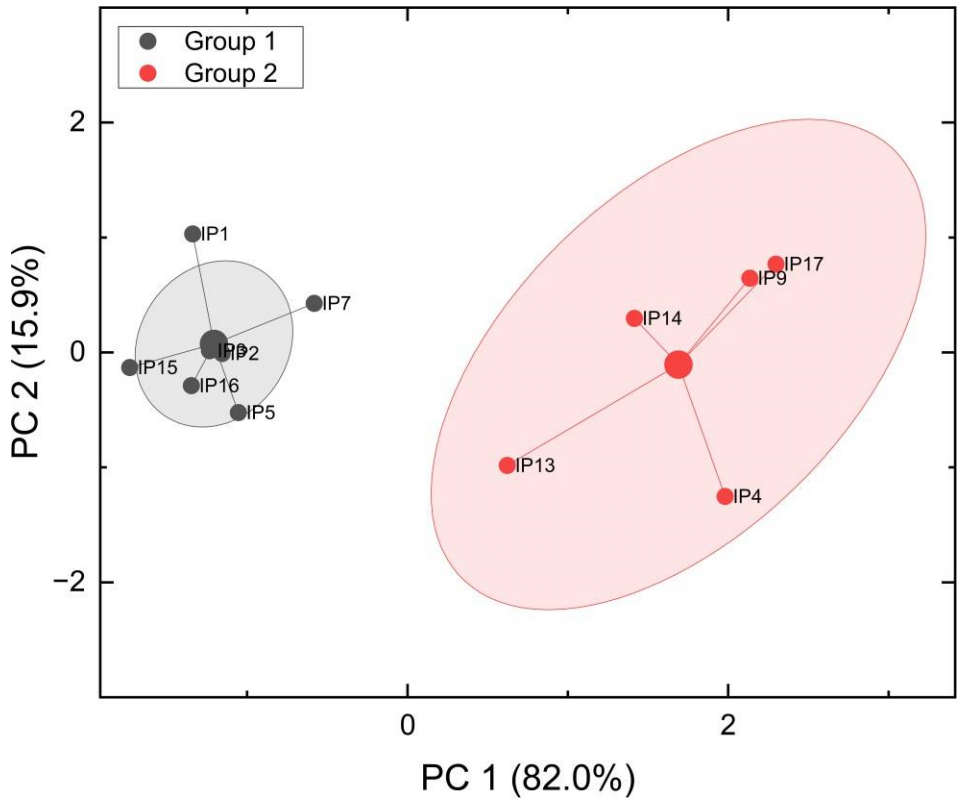
2.5. History of prior malignancy with the exception of low-grade skin cancer

2.6. Inability to tolerate the necessary measurements for the study

2.7. Diseases of the hematopoetic system

2.8. Diagnostic exposure to ionizing radiation within one week of planned exposure to I-131

Cluster plot



Supplemental Figure S1: Cluster plot of the k means cluster analysis for k_1, k_2, and c for Groups 1 and 2. The shaded areas denote the 95% confidence area.

References

1 Schumann, S. *et al.* DNA damage and repair in peripheral blood mononuclear cells after internal ex vivo irradiation of patient blood with ^{131}I. *Eur J Nucl Med Mol Imaging* **49**, 1447-1455 (2022). https://doi.org:10.1007/s00259-021-05605-8