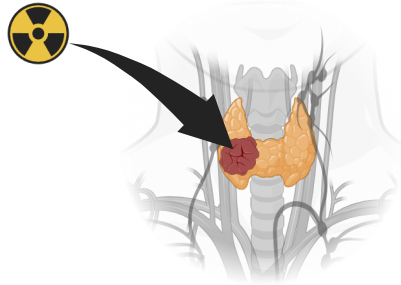


Title: Molecular Subtypes in Radiation-Induced Papillary Thyroid Cancer (PTC) Using Thyroid GuidePx®

Authors: Elleine Allapitan, Jeremy Fan, Sara Dutton, Oliver F. Bathe, Cynthia Stretch

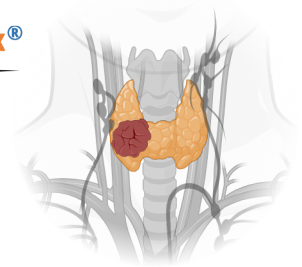
Radiation-induced PTC



N = 344 from the Chernobyl accident

Thyroid GuidePx®

Sporadic PTC



N = 79 matched by age and geography

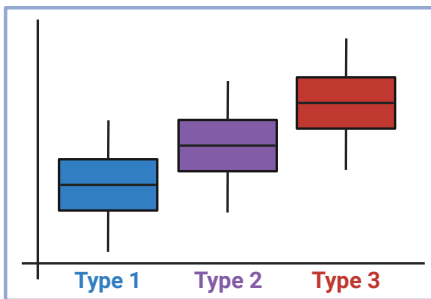
N = 502 TCGA

Thyroid GuidePx®

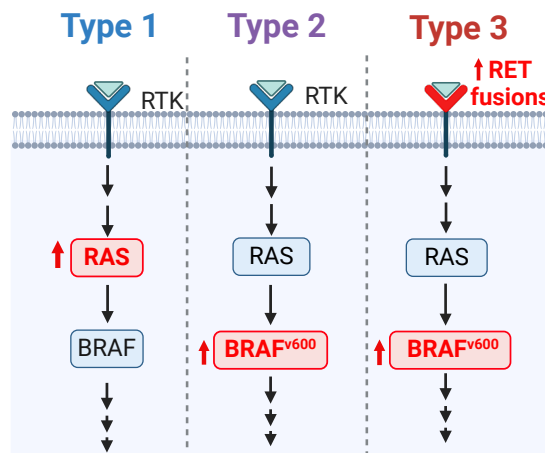
	Radiation-induced	Sporadic matched	Sporadic TCGA
Type 1	27 %	20 %	25 %
Type 2	62 %	52 %	47 %
Type 3	11 %	28 %	28 %

Molecular subtypes show similar biology regardless of radiation exposure

Pathway enrichment pattern



Mutational profile



Clinical characteristics

- Type 1**
 - Likely to be N0
 - Likely follicular variant
 - RAS-like
- Type 2**
 - BRAF-like
- Type 3**
 - Most aggressive and likely to recur
 - Highest mutational load
 - Likely to have extrathyroidal extension and vascular invasion

Conclusion: As in sporadic PTC, Type 3 defined by Thyroid GuidePx® have more aggressive clinical features, including a higher rate of RET fusions.