

Supplementary Information

***BRAF*^{V600E} mutation is highly prevalent in thyroid carcinomas in the young population in Fukushima: a different oncogenic profile from Chernobyl**

Norisato Mitsutake^{1,4†*}, Toshihiko Fukushima^{5†}, Michiko Matsuse^{1†}, Tatiana Rogounovitch³, Vladimir Saenko², Shinya Uchino⁷, Masahiro Ito⁶, Keiji Suzuki¹, Shinichi Suzuki^{5§*}, Shunichi Yamashita^{1,2§}

¹Department of Radiation Medical Sciences, ²Department of Health Risk Control, ³Department of Global Health, Medicine and Welfare, Atomic Bomb Disease Institute, Nagasaki University

⁴Nagasaki University Research Centre for Genomic Instability and Carcinogenesis (NRGIC)

⁵Department of Thyroid and Endocrinology, Fukushima Medical University

⁶Department of Pathology, Nagasaki Medical Centre

⁷Department of Surgery, Noguchi Hospital

†, §These authors contributed equally.

*Correspondence to:

Norisato Mitsutake, MD PhD, E-mail: mitsu@nagasaki-u.ac.jp

Shinichi Suzuki, MD PhD, E-mail: shsuzuki@fmu.ac.jp

This PDF file includes:

Supplementary Table S1. PCR enzymes and primer sequences

Supplemental Table S1. PCR enzymes and primer sequences

Gene	Primer sequence	Annealing Temperature (°C)	Amplicon size (bp)	PCR enzyme	Reference
<i>BRAF(ex15)</i>	5'-ACATACTTATTGACTCTAAGAGGAAAGATGAA-3' 5'-GATTTTTGTGAATACTGGGAACCTATGA-3'	60	400	KOD FX	
<i>H-RAS(cdn12)</i>	5'-AGCAGGGCCCTCCTTGGCAG-3' 5'-CAGCCAGCCCTATCCTGGCTG-3'	65	261	AmpliTaq	
<i>H-RAS(cdn61)</i>	5'-CAGGGAGAGGCTGGCTGTGTG-3' 5'-CCACCTGTGCGGCGTGGGCT-3'	65	298	ExTaq	
<i>K-RAS(cdn12)</i>	5'-GGTACTGGTGGAGTATTTGATAGT-3' 5'-CTCATGAAAATGGTCAGAGAAACCT-3'	60	290	ExTaq	
<i>K-RAS(cdn61)</i>	5'-GGTGCCTGTAATAATCCAGACTG-3' 5'-CTATAATTACTCCTTAATGTCAGCTT-3'	60	268	ExTaq	
<i>N-RAS(cdn12)</i>	5'-CACACTAGGGTTTTTCATTTCCATTG-3' 5'-GGTAAAGATGATCCGACAAGTGAG-3'	63	283	ExTaq	
<i>N-RAS(cdn61)</i>	5'-TTGAACTTCCCTCCCTCCCTGC-3' 5'-AGCTCTATCTTCCCTAGTGTGGTAA-3'	65	316	AmpliTaq	
<i>RET/PTC1</i>	5'-GCCTGGAGGACCTCACCAA-3' 5'-CTCTGCCTTTCAGATGGAA-3'	56	255	AmpliTaq	
<i>RET/PTC3</i>	5'-ACCTGCCAGTGGTTATCAAGC-3' 5'-TTCGCCTTCTCCTAGAGTTTTTCC-3'	59	150	AmpliTaq	
<i>TERT prom</i>	5'-CAGCGCTGCCTGAAACTC-3' 5'-GTCCTGCCCTTCCACCTT-3'	63	163	KOD FX	Melo <i>et al.</i>
<i>AKAP9/BRAF</i>	5'-AGCAAGAACAGTTGATTTTGGGA-3' 5'-GCAGACAAACCTGTGGTTGA-3'	63	181	KOD FX	Ciampi <i>et al.</i>
<i>ETV6(ex4)/NTRK3</i>	5'-ACAGCCGGAGGTCATACTGCAT-3' 5'-TTGTGTCCCTGACGGAAGTACTG-3'	68	207	KOD FX	
<i>ETV6(ex5)/NTRK3</i>	5'-AAGCCCATCAACCTCTCTCA-3' 5'-TCCTCACCCTGATGACAGC-3'	60	139	AmpliTaq	Leeman-Neil <i>et al.</i>

References:

Melo, M. *et al.* TERT promoter mutations are a major indicator of poor outcome in differentiated thyroid carcinomas. *J. Clin. Endocrinol. Metab.* **99**, E754-765 (2014).
 Ciampi, R. *et al.* Oncogenic AKAP9-BRAF fusion is a novel mechanism of MAPK pathway activation in thyroid cancer. *J. Clin. Invest.* **115**, 94-101 (2005).
 Leeman-Neill, R. J. *et al.* ETV6-NTRK3 is a common chromosomal rearrangement in radiation-associated thyroid cancer. *Cancer* **120**, 799-807 (2014).