

**Supplemental Table 1.** FNA and final diagnoses of 29 ex-vivo specimens (Derivation Group)

Sample	FNA Diagnosis <sup>*</sup>	Nodule Size	Surgery <sup>†</sup>	Final Diagnosis <sup>#</sup>	Thyroiditis <sup>^</sup>
1	Follicular Neoplasm	2	TT	FVPTC	No
2	Follicular lesion of undetermined significance	2	TT	FVPTC	No
3	Follicular lesion of undetermined significance	2	TT	CPTC	No
4	Follicular Neoplasm	3.6	TT	FTC	Yes
5	Follicular lesion of undetermined significance	0.8	HT	FVPTC	No
6	Hurthle Cell Neoplasm	2.3	TT	FVPTC, oncocytic variant	Yes
7	Follicular lesion of undetermined significance	4.8	HT+CT	FTC	No
8	Follicular lesion of undetermined significance	4	HT+CT	CPTC, cribriform variant	No
9	Follicular lesion of undetermined significance	1.4	HT	FVPTC	Yes
10	Follicular lesion of undetermined significance	1.3	TT	FVPTC	No
11	Follicular lesion of undetermined significance	1	HT	CPTC	No
12	Follicular lesion of undetermined significance	1.4	HT+CT	FVPTC	No
13	Hurthle Cell Neoplasm	1.3	HT+CT	FVPTC, oncocytic variant	No
14	Follicular lesion of undetermined significance	2	TT	CPTC	No
15	Hurthle Cell Neoplasm	6	HT	FA	No
16	Follicular Neoplasm	2.3	HT	FA	No
17	Follicular lesion of undetermined significance	1.5	HT	FA	No
18	Follicular Neoplasm	2	HT	FA	No
19	Follicular lesion of undetermined significance	8	HT	FA	No
20	Follicular Neoplasm	2.4	HT	FA	No
21	Follicular lesion of undetermined significance	4.2	HT	FA	No

<b>22</b>	Follicular lesion of undetermined significance	2.5	TT	FA, oncocytic variant	No
<b>23</b>	Follicular Neoplasm	1.1	HT	FA	No
<b>24</b>	Follicular lesion of undetermined significance	2.5	TT	FA	No
<b>25</b>	Follicular Neoplasm	1.5	HT	FA	No
<b>26</b>	Follicular lesion of undetermined significance	2.5	TT	FA, myxoid features	No
<b>27</b>	Follicular Neoplasm	2	HT	FA	No
<b>28</b>	Follicular lesion of undetermined significance	5	TT	Hyperplastic Nodule	No
<b>29</b>	Follicular Neoplasm	5	TT	Hyperplastic Nodule	No

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\* Classification according to The NCI Thyroid Fine-Needle-Aspiration State of the Science Conference Scheme; † TT=Total Thyroidectomy, HT=Hemithyroidectomy, CT=Completion Thyroidectomy; # CPTC: Classic Variant of Papillary Thyroid Cancer, FVPTC: Follicular Variant of Papillary Thyroid Cancer, FTC: Follicular Thyroid Cancer, FA: Follicular Adenoma; ^ Thyroiditis - Yes: Chronic Lymphocytic Thyroiditis, not meeting criteria for Hashimoto's or Grave's Thyroiditis, No: Absence of Thyroiditis