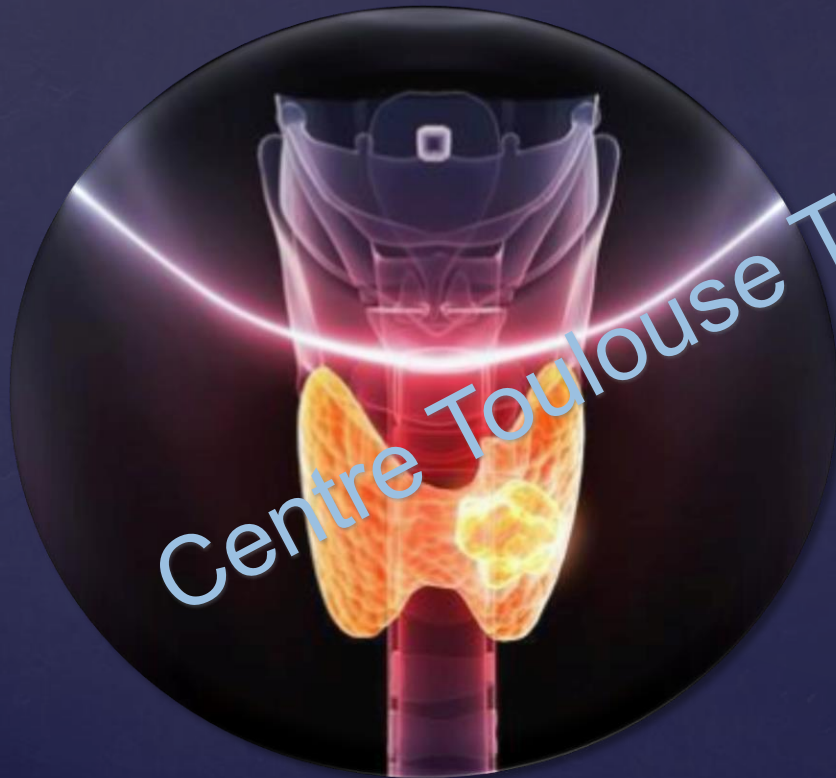


Expertise du nodule thyroïdien

Place de la biologie moléculaire en 2020



Pr Frédérique SAVAGNER

Dr Sébastien FONTAINE

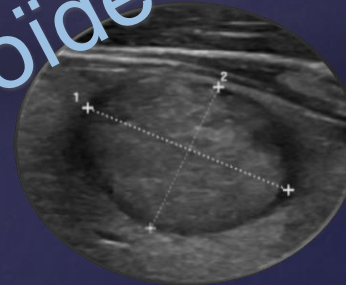
Bilan du nodule thyroïdien

Examen clinique

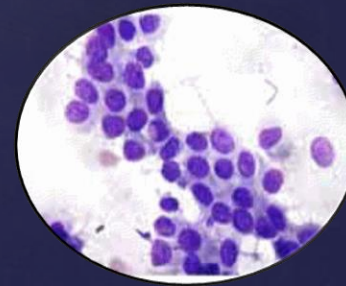
Biologie : TSH +/- TCT



Echographie : EU-TIRADS

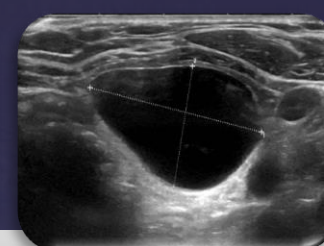
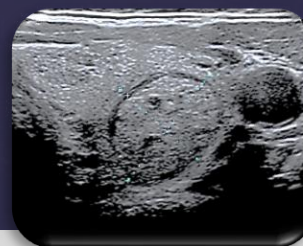
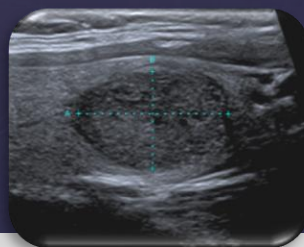
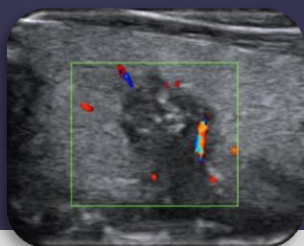


Cytométrie : BETHESDA



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Cytoponction thyroïdienne



Forme non ovale
Contours irréguliers
Microcalcifications
Hypoéchogénéité marquée

Modérément
hypoéchogène

Entièrement
Isoéchogène ou
Hyperéchogène

Anéchogène
ou entièrement
spongiforme

Risque élevé
EU-TIRADS 5

Risque
intermédiaire
EU-TIRADS 4

Risque faible
EU-TIRADS 3

Bénin
EU-TIRADS 2

Risque 26-87%
4% des nodules

Risque: 6-17%
28% des nodules

Risque 2-4%
63% des nodules

Risque ≈ 0%
5% des nodules

Dès 7-10 mm

> 15 mm

> 20 mm

> 20 mm +
compression

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2017 Bethesda System for Reporting Thyroid Cytopathology

Diagnostic Category	ROM if NIFTP not cancer	ROM if NIFTP is cancer	Management
Nondiagnostic/unsatisfactory Cyst fluid only Acellular specimen Other: Obscuring factors	5–10%	5–10%	Repeat fine needle aspiration under ultrasound guidance
Benign Benign follicular nodule Chronic lymphocytic (Hashimoto) thyroiditis, in proper clinical setting Granulomatous (subacute) thyroiditis	0–3%	0–3%	Clinical and US follow-up until two negative
Atypia of undetermined significance/ follicular lesion of undetermined significance	6–18%	10–30%	Repeat FNA, molecular testing, or lobectomy
Follicular neoplasm/ suspicious for a follicular neoplasm (Specify if Hürthle cell type)	10–40%	25–40%	Molecular testing, lobectomy
Suspicious for malignancy	45–60%	50–75%	Lobectomy or near-total thyroidectomy
Malignant Papillary thyroid carcinoma Medullary thyroid carcinoma Poorly differentiated carcinoma Undifferentiated (anaplastic) carcinoma Squamous cell carcinoma Carcinoma with mixed features Metastatic malignancy Non-Hodgkin lymphoma Other	94–96%	97–99%	Lobectomy or near-total thyroidectomy

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Introduction

Recommandations habituelles

- * Nodule ASI à 2 reprises
- * Tumeurs folliculaires +/- oncocytaires



Chirurgie

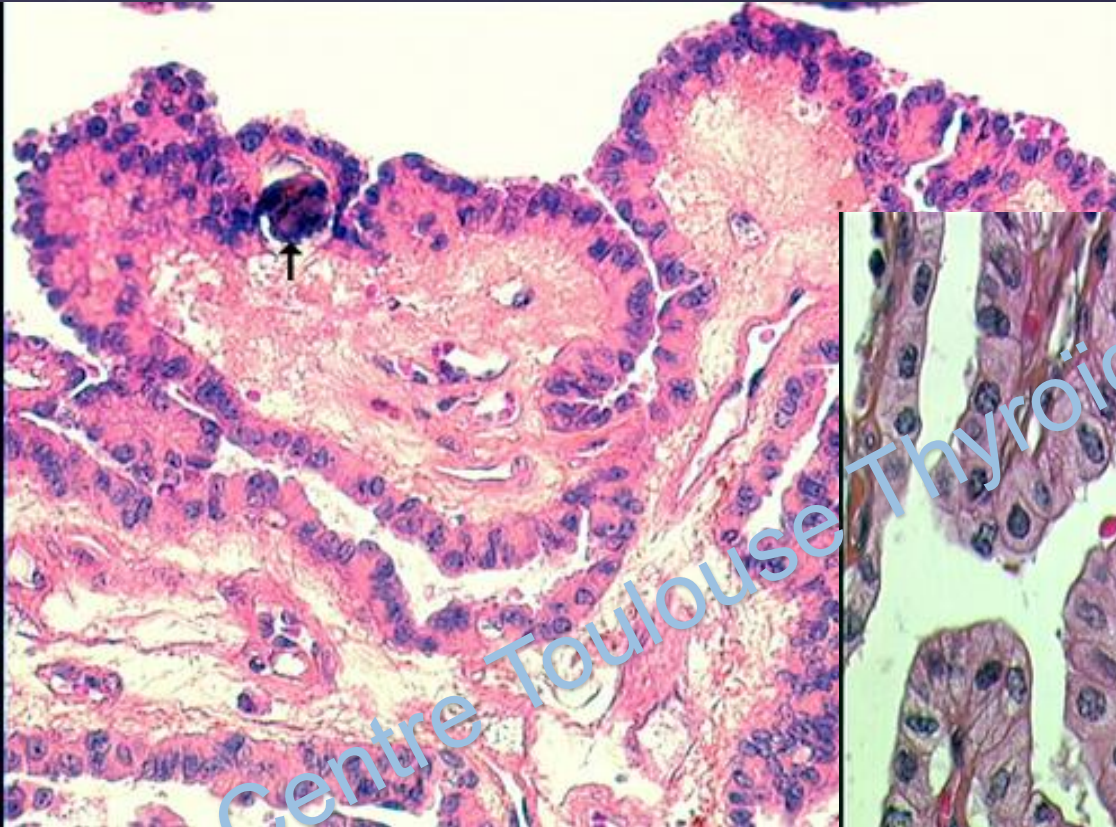


Surveillance

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Introduction

Diagnostic de certitude : Anapath de la lésion

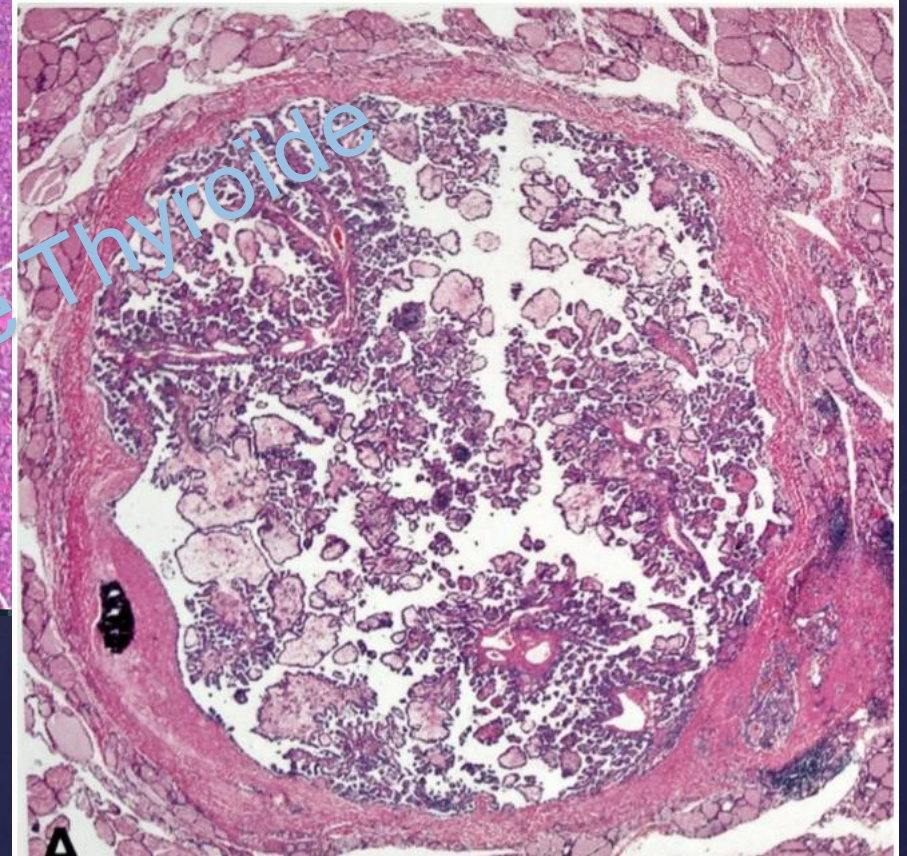
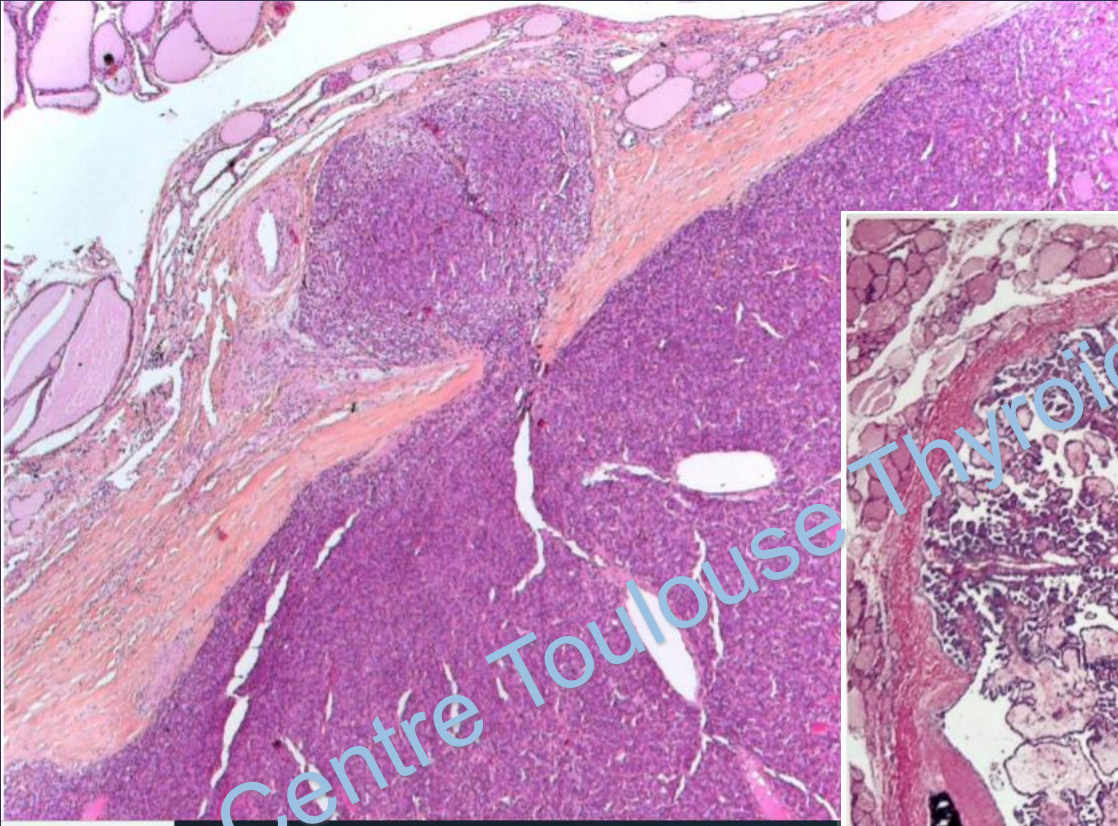


Papillaire typique



Introduction

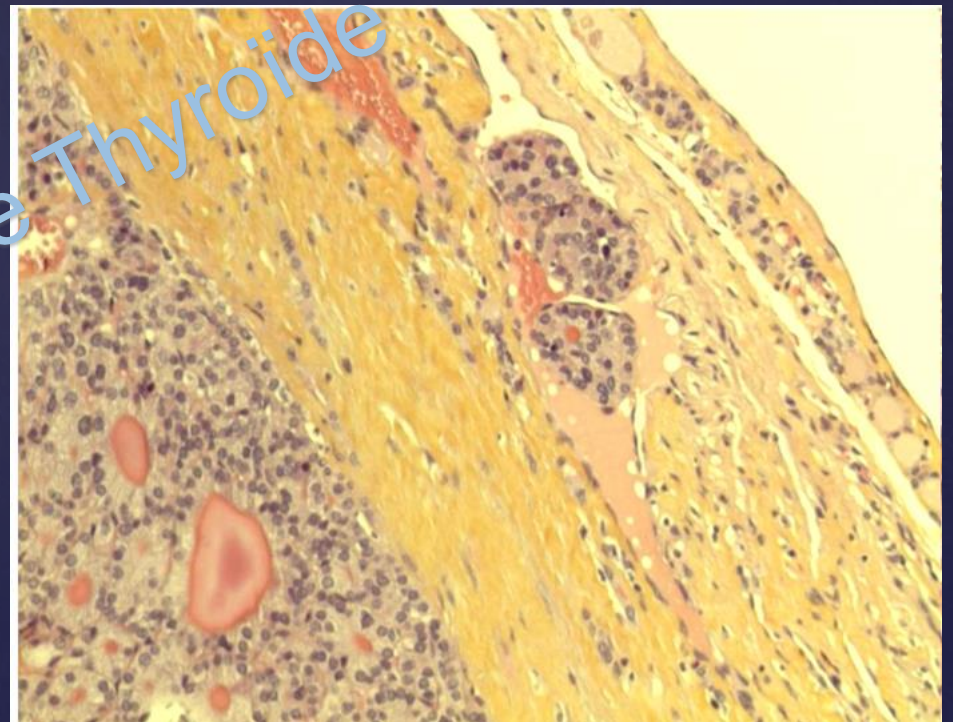
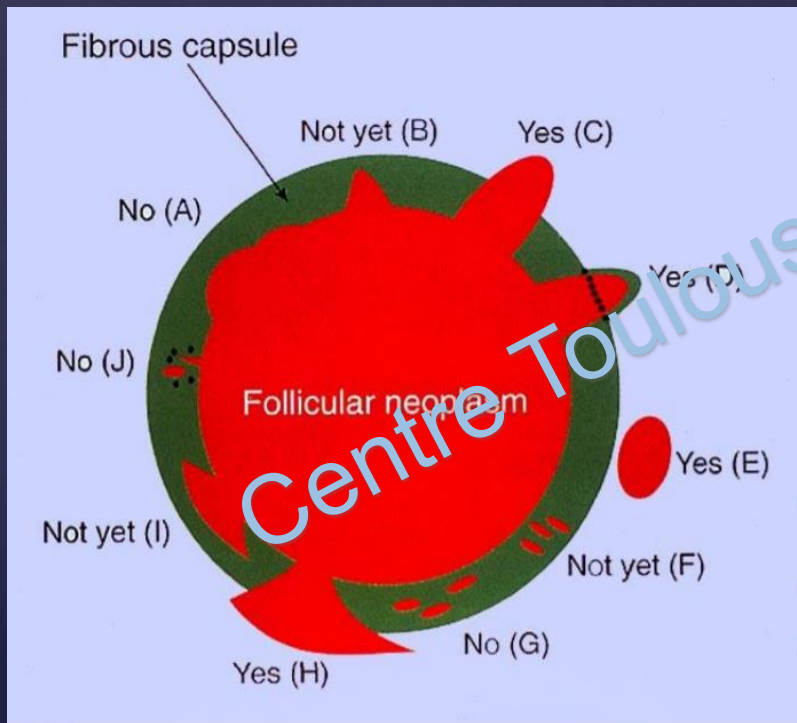
Diagnostic de certitude : Anapath de la lésion



Architecture folliculaire

Introduction

Analyse de l'ensemble de la capsule à la recherche de signes d'invasion.



Quelles solutions alternatives à la chirurgie ?



Microbiopsie

- * Intérêt pour les 2 x Non diagnostiques
- * Discussion pour ASI sur cytologie peu cellulaire
- * Pas d'intérêt pour Tumeurs folliculaires

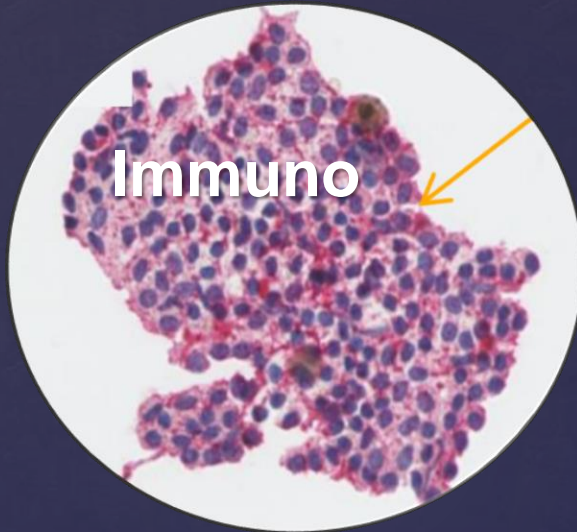


PET scan

- * Insuffisant pour gradation du risque

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Quelles solutions alternatives à la chirurgie ?



- * Marquage HBME1 > 30%
- * Marquage CK19 ?
- * Marquage anti BRAF ?

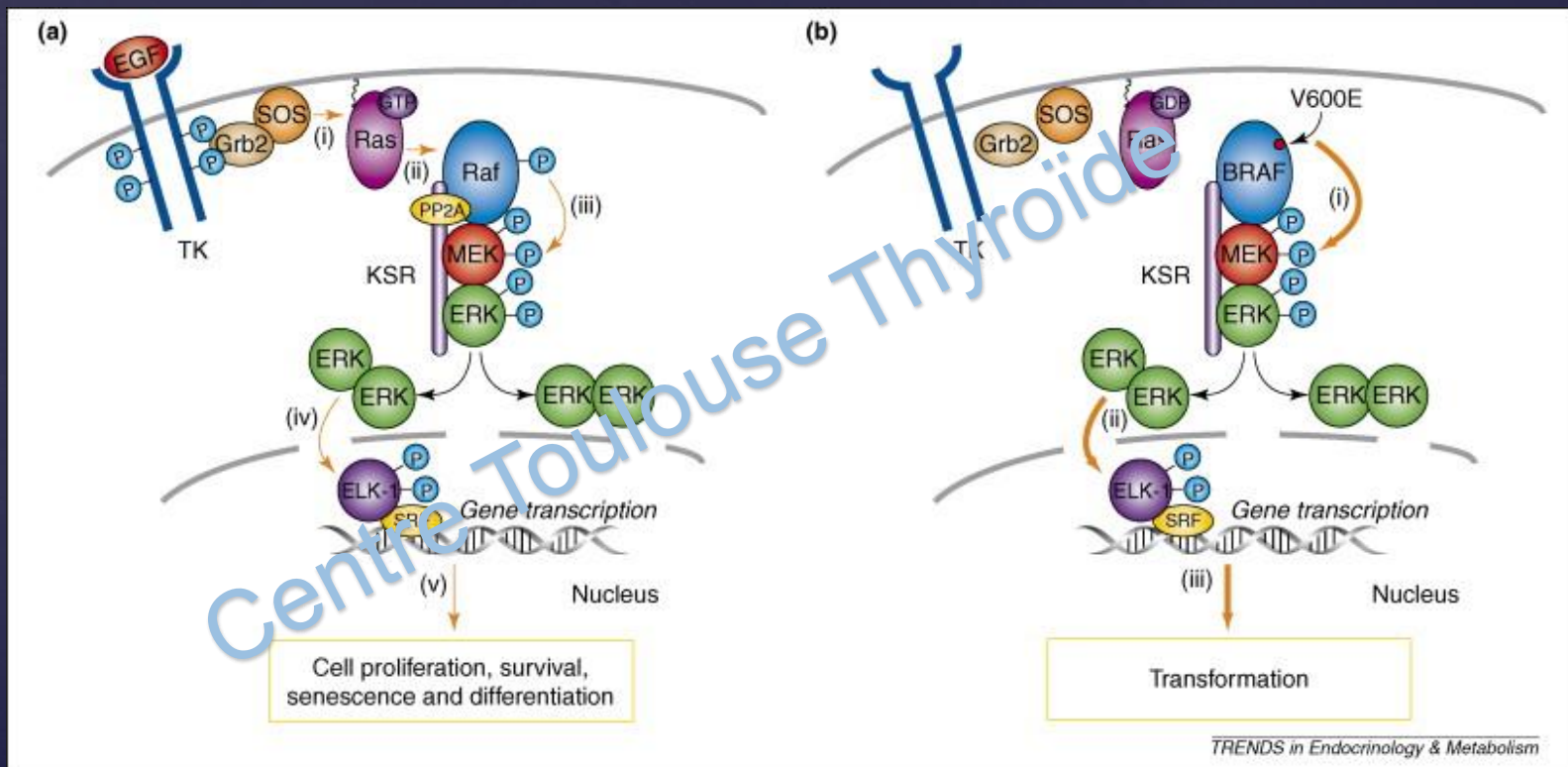


- * THYROSEQ V3
- * Panel BRAF-RAS (RET/PTC, PAX8/PPAR ?)
- * Mi-RNA

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Introduction

Recherche de mutations activatrices



Genetics of Thyroid Cancer

Poorly differentiated

- **RAS (25–30%)**
- TP53 (20–30%)
- CTNNB1 (10–20%)
- **BRAF (10–15%)**

Follicular

Mutations identified in 70–75%

- **RAS (40–50%)**; lower in oncocytic
- PAX8/PPAR γ (30–35%); lower in oncocytic
- TP53 (21%)
- PTEN (8%)
- PIK3CA (7%)
- **BRAF (2%)**

Oncocytic

Conventional

Anaplastic

Medullary

Papillary

Mutations identified in ~70%

- **BRAF^a (40–50%)**
- **RAS^b (7–20%)**
- RET/PTC (clonal; 10–20%)
- EGFR (5%)
- TRK (<5%)
- PIK3CA (2%)

