PATHOLOGY OF ENDOMETRIAL CANCER

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Summary

- Pathologic Classification
- Molecular Classification

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- Molecular Classification

WHO Classification of Tumours 5th Edition: Female Genital Tumours
2nd Editorial Board meeting: 9 May 2019, IARC, Lyon FRANCE

Endometrial carcinoma (Histological Classification)

1- Endometrioid carcinoma
2- Serous carcinoma
3- Clear cell carcinoma
4- Undifferentiated-Dedifferentiated carcinoma
5- Mixed carcinoma
6- Other
7- Carcinosarcoma

Neuroendocrine carcinoma

WHO 2019

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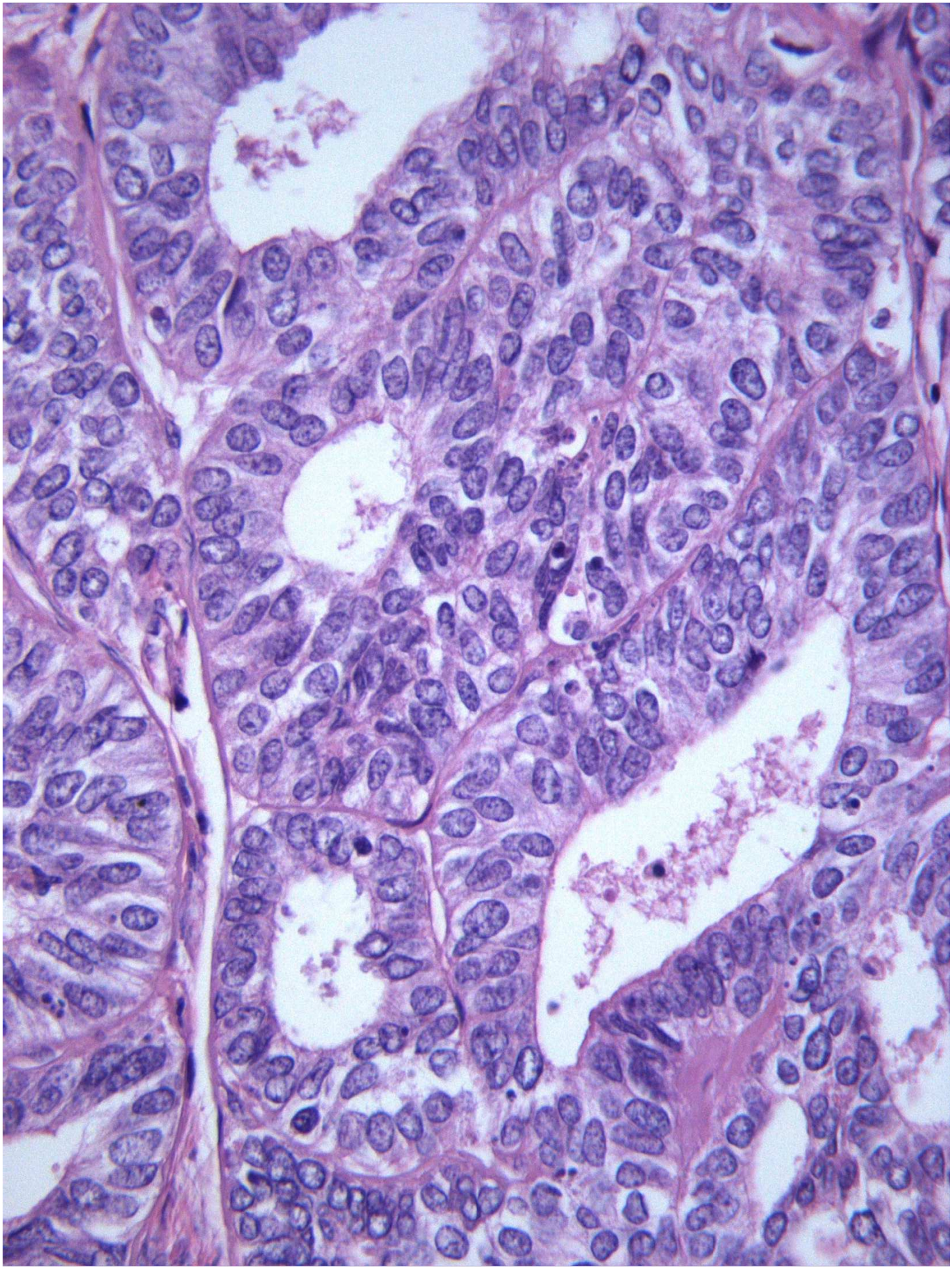
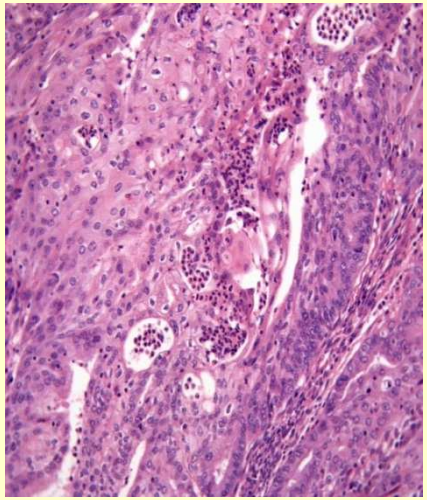
WHO 2020

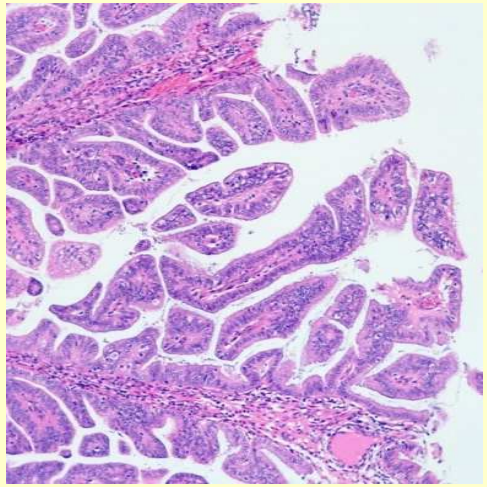


Endometrioid carcinoma patterns

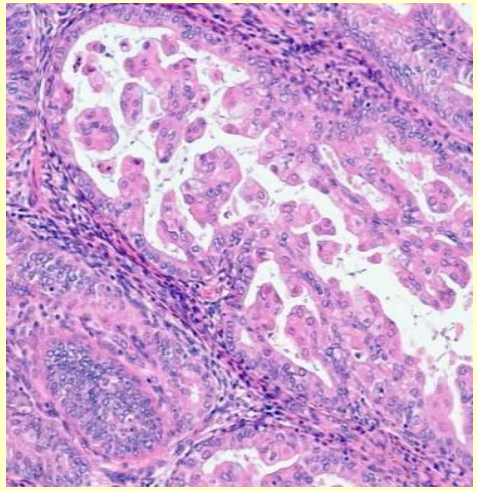
- Villoglandular
- With squamous differentiation
- Secretory variant
- Small non-villous
- Microglandular
- Spindle
- Sertoliform
- Sex-cord-like formation and hyalinization
- Mucinous



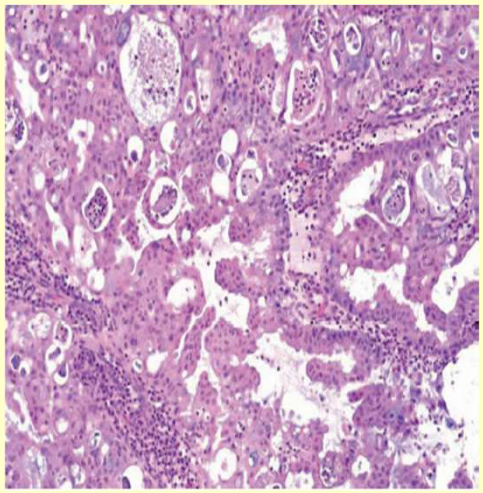
squamous differentiation



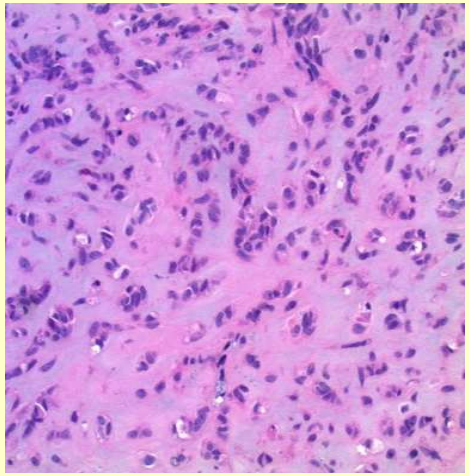
villoglandular



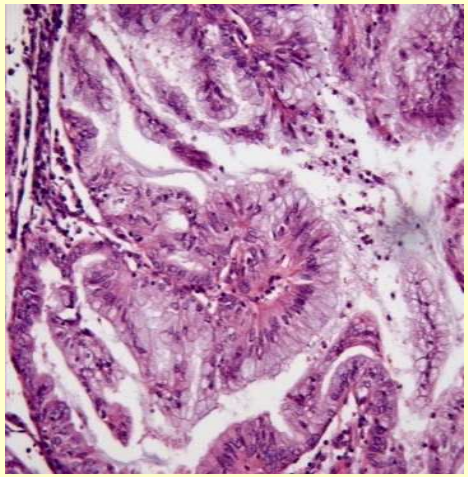
with small nonvillous papillae



microglandular



sex cord-like formations hyalinization



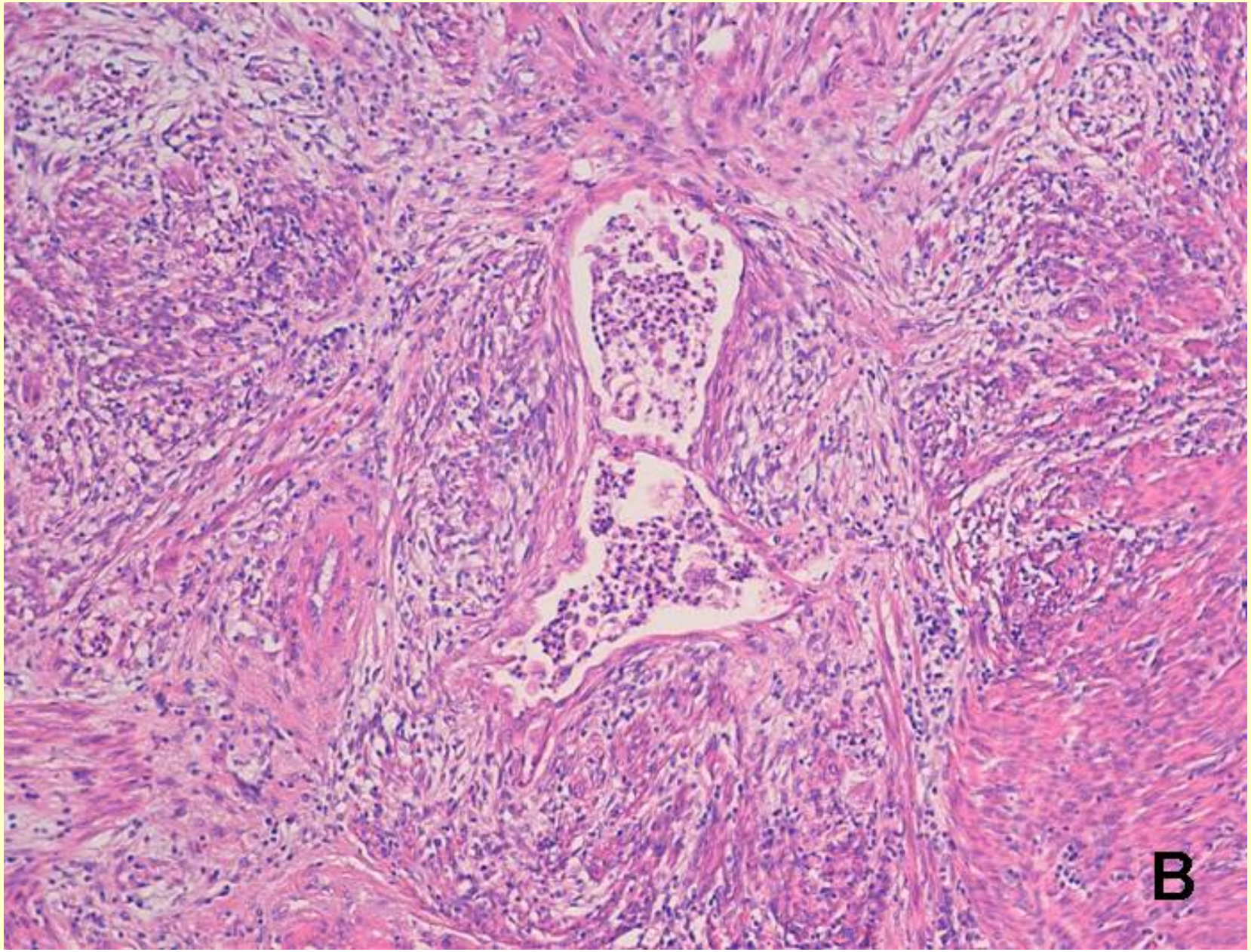
mucinous

Endometrial carcinoma (Patterns of Myometrial Invasion)

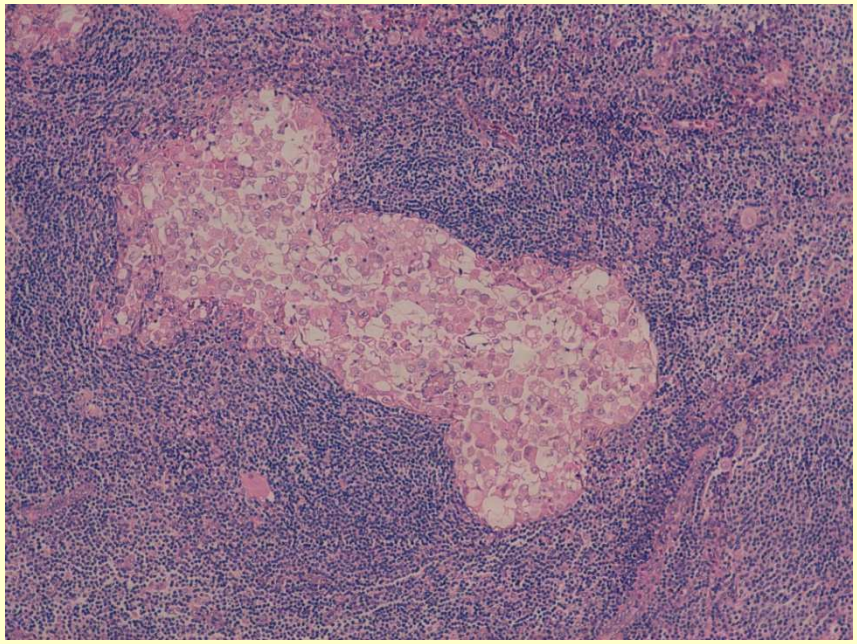
- Adenoma malignum pattern (diffusely infiltrating)

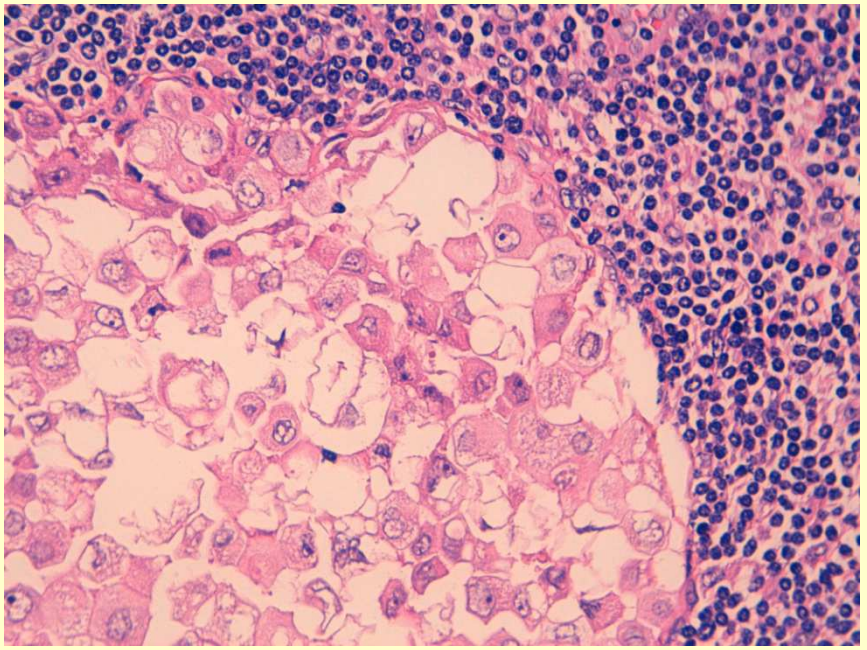
- MELF (microcystic, elongation, and fragmentation, with a fibromyxoid stroma)

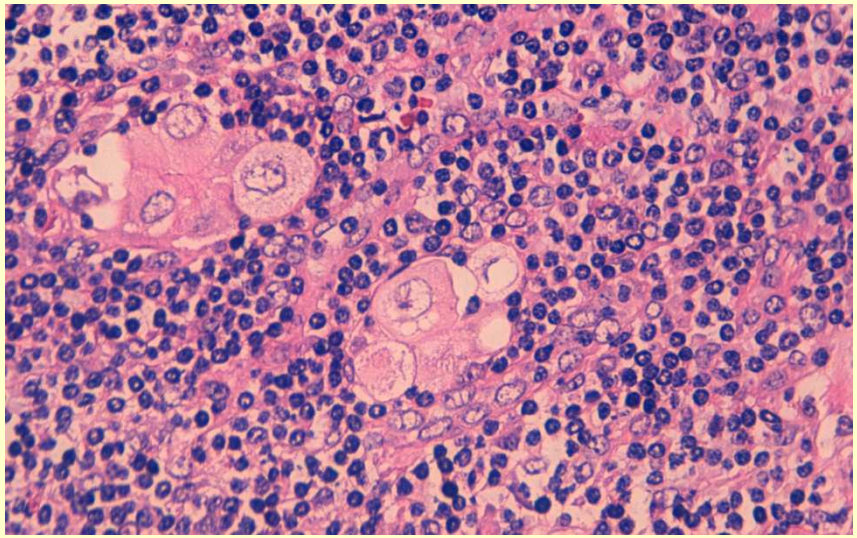
MELF pattern

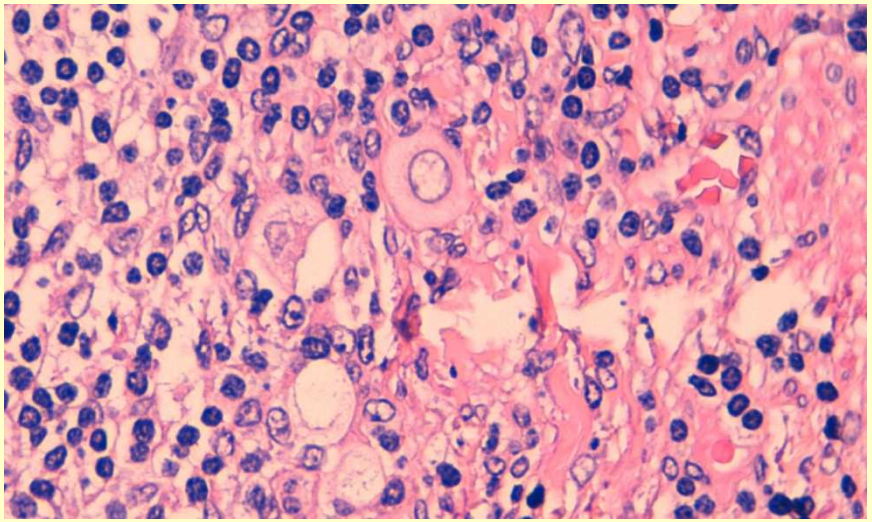


Histiocyte-like nodal metastasis in low grade EEC with MELF

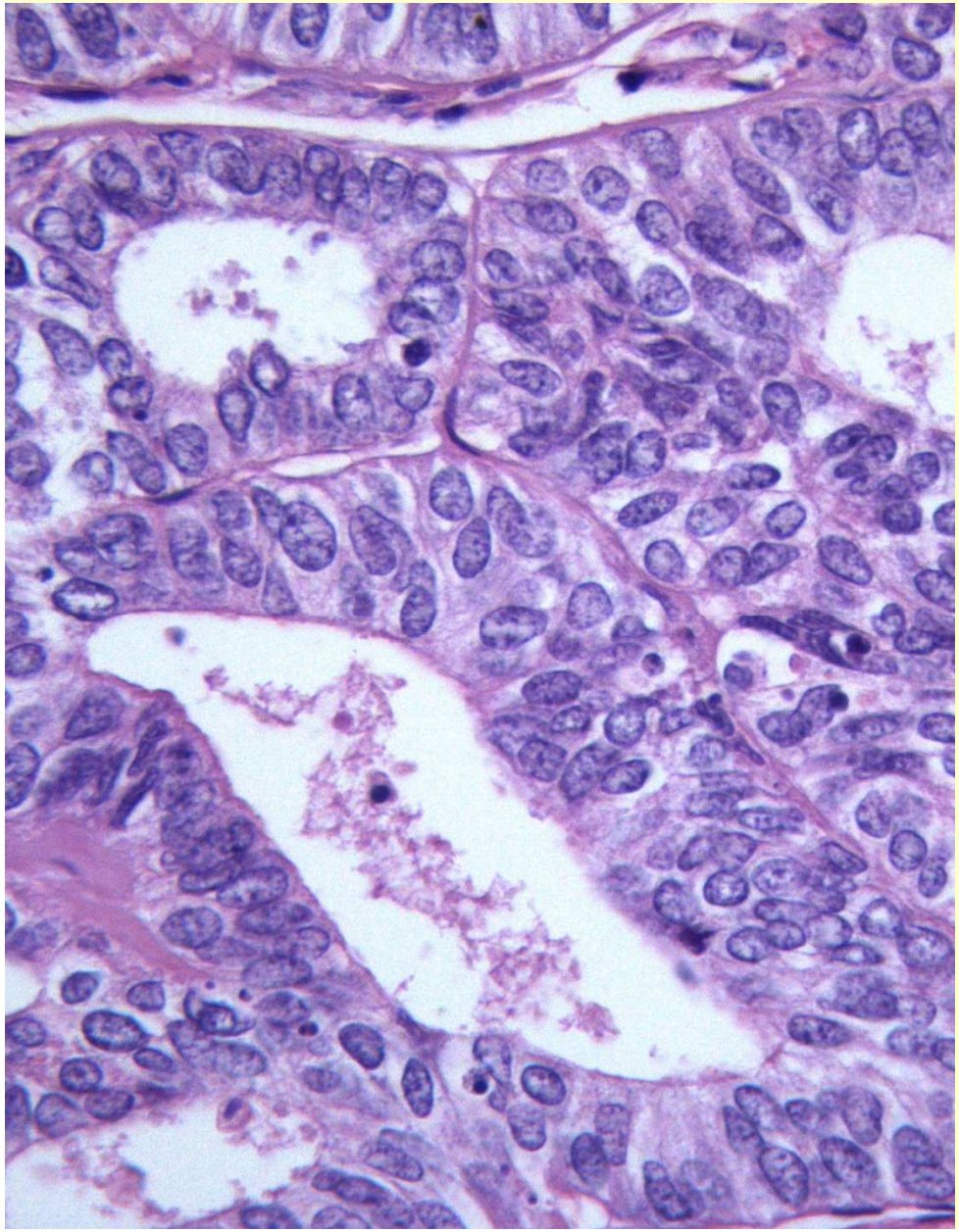




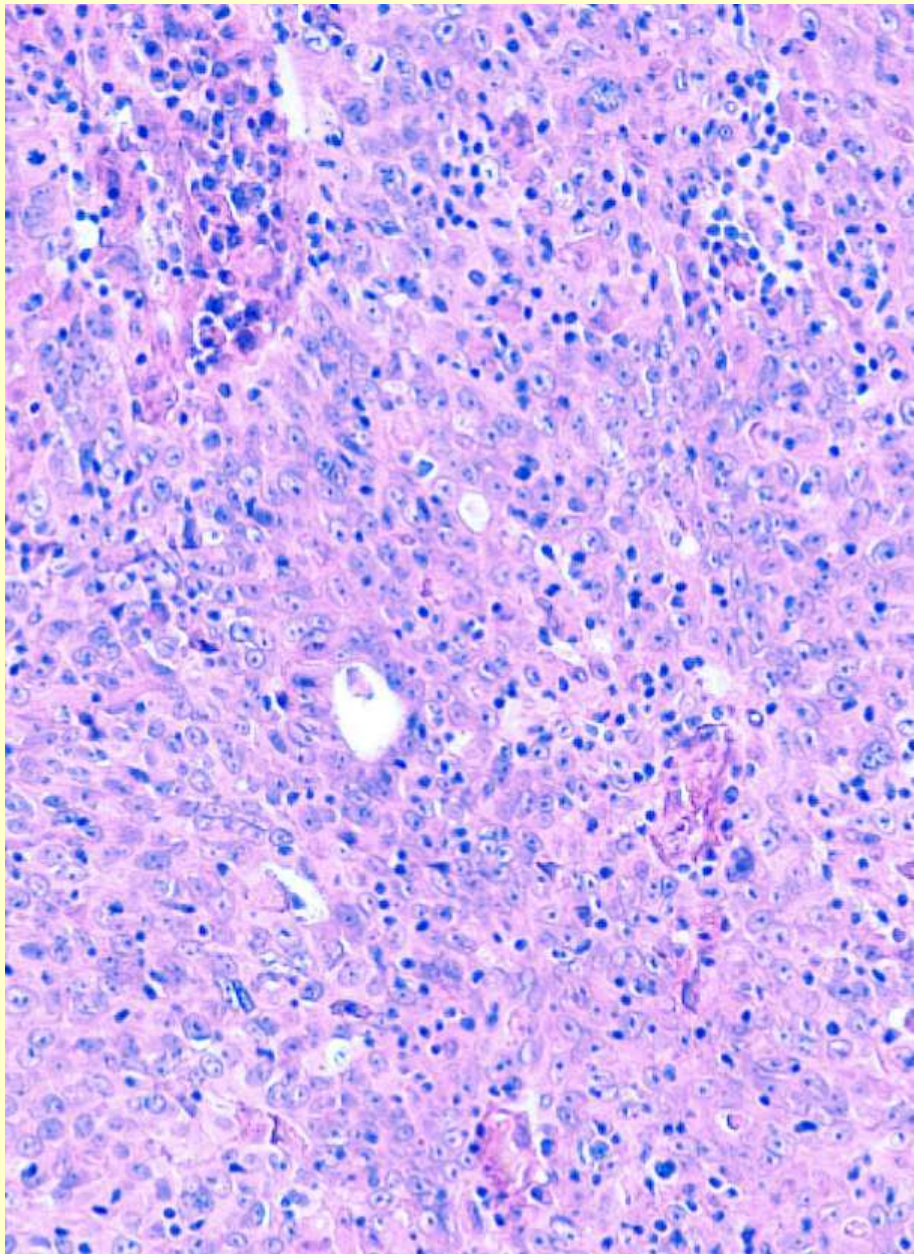




EEC 1,2



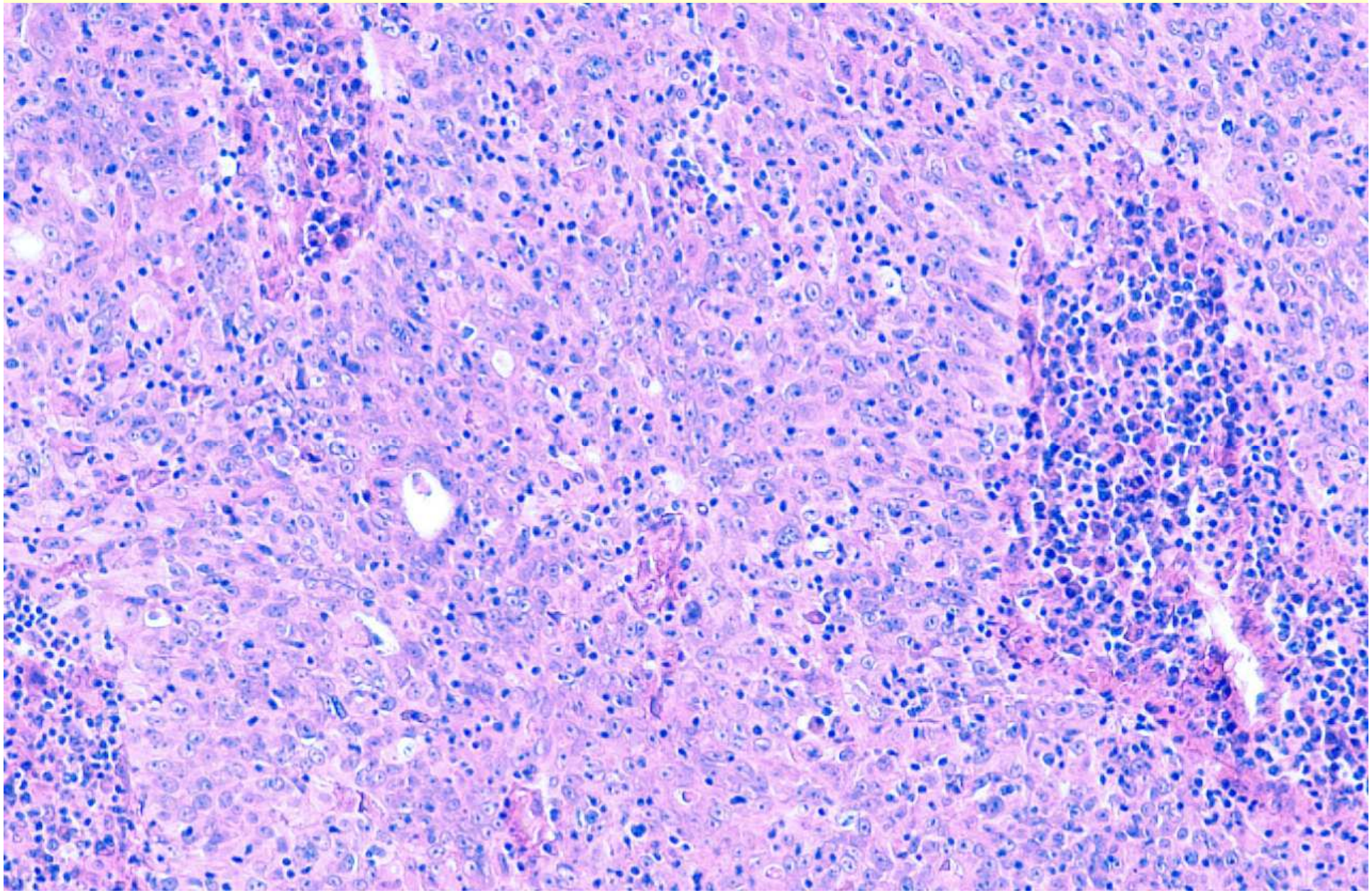
EEC 3



High-grade endometrioid carcinoma

- **Solid pattern (> 50%) with focal gland formation.**
- **Transition from low-grade endometrioid component**
- **Presence of endometrioid features (mucinous or squamous)**
- **Columnar cells in glandular areas**
- **Occasionally background hyperplasia**

EEC 3 with focal glandular differentiation



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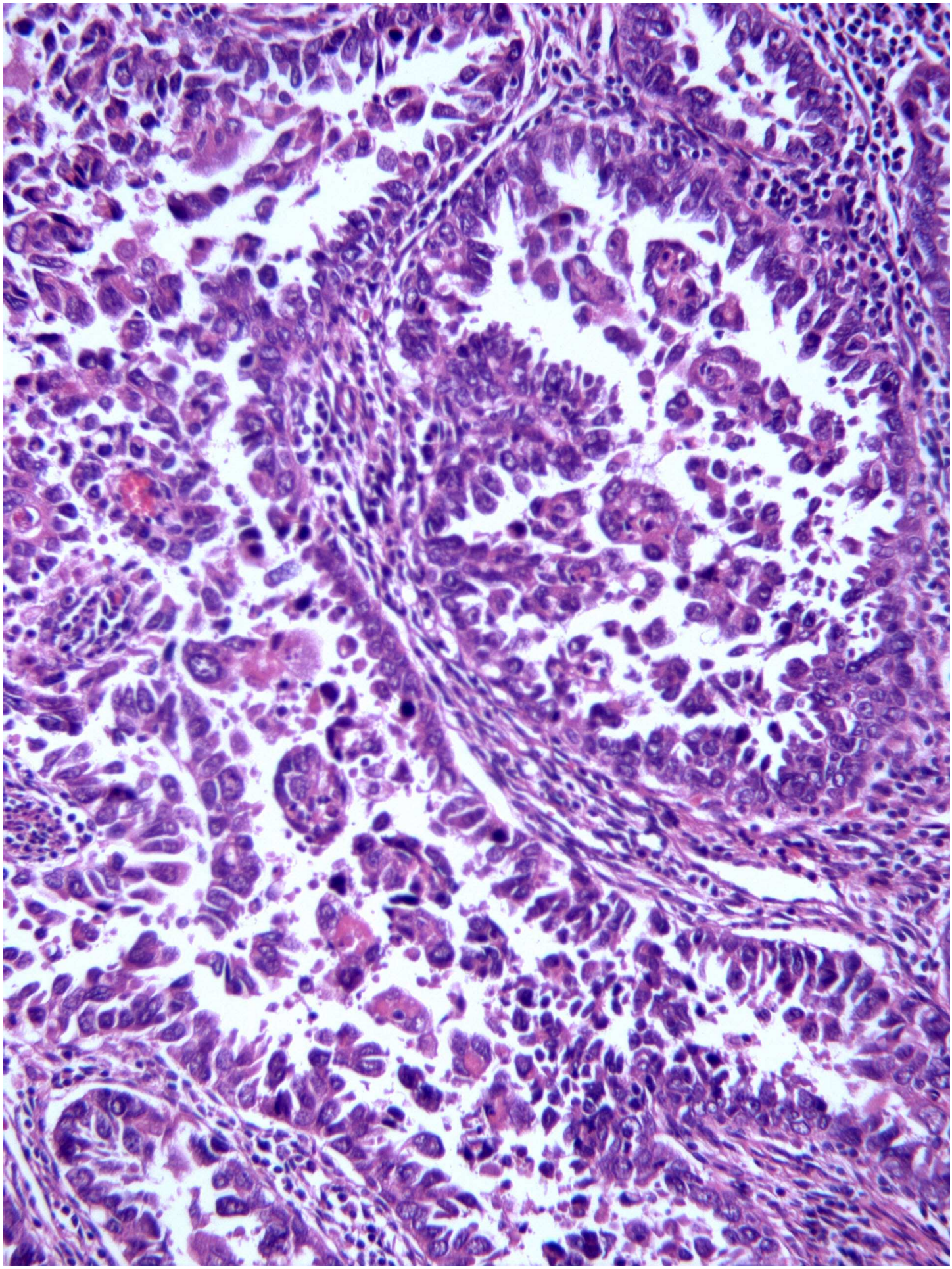
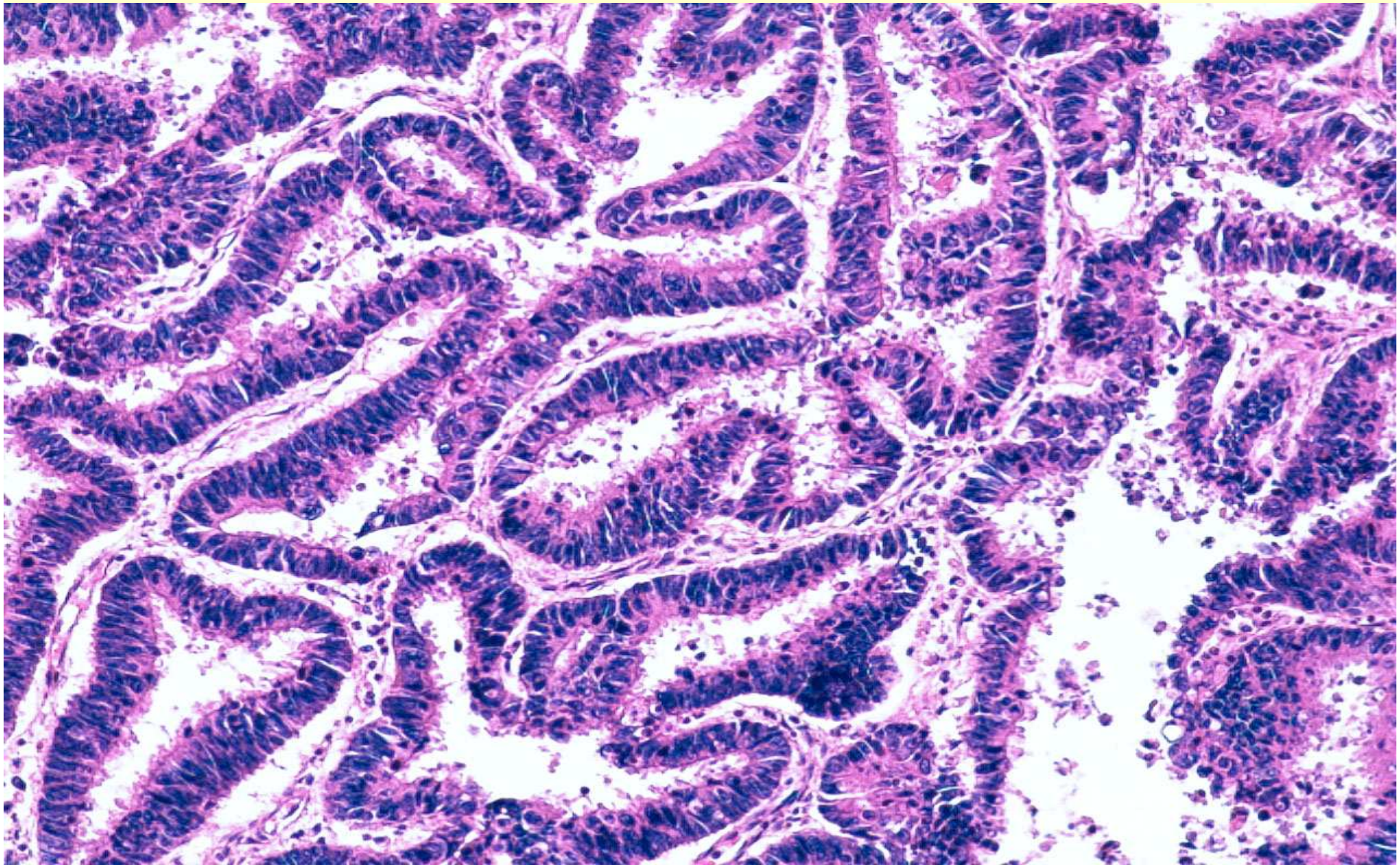
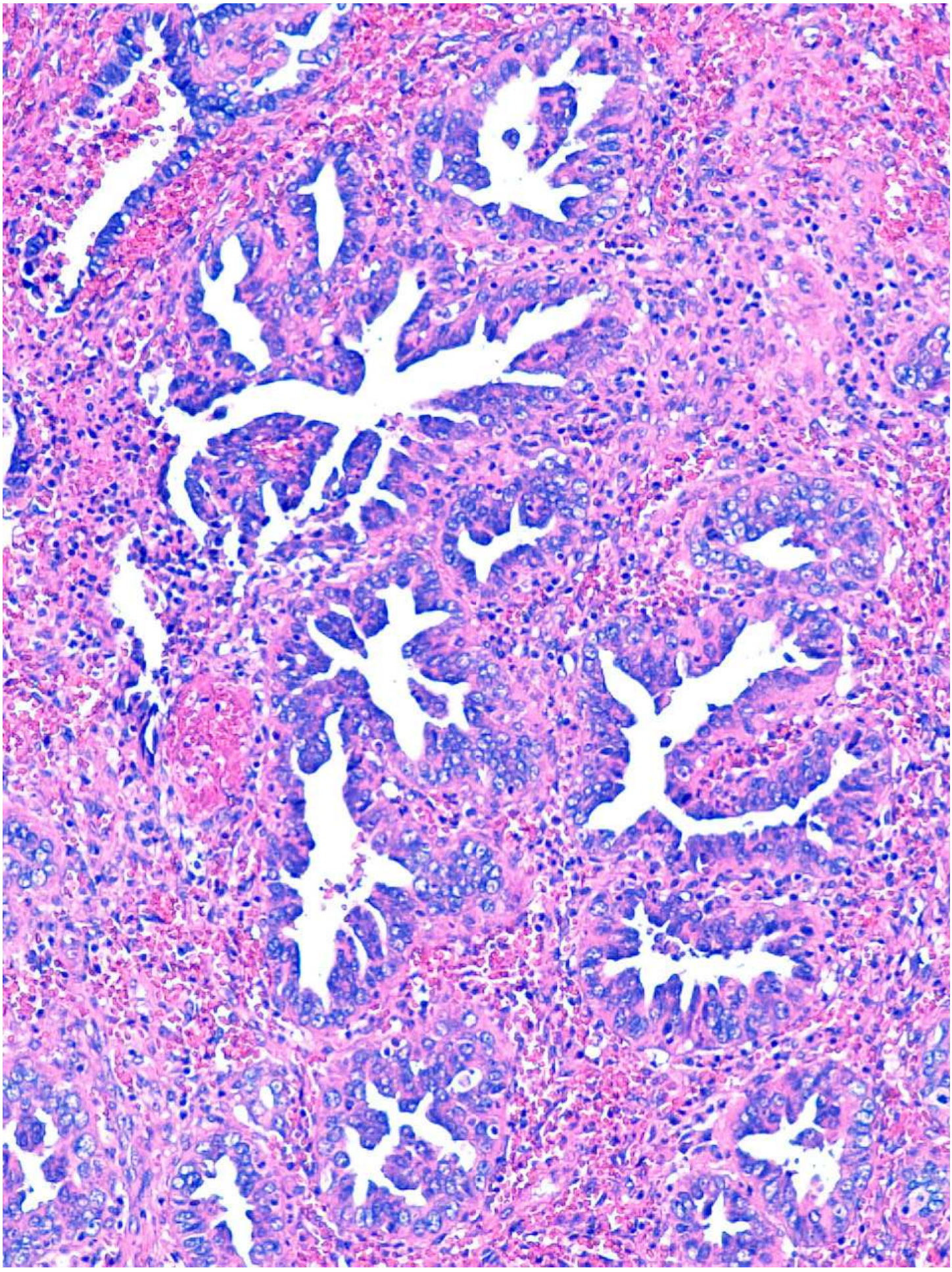
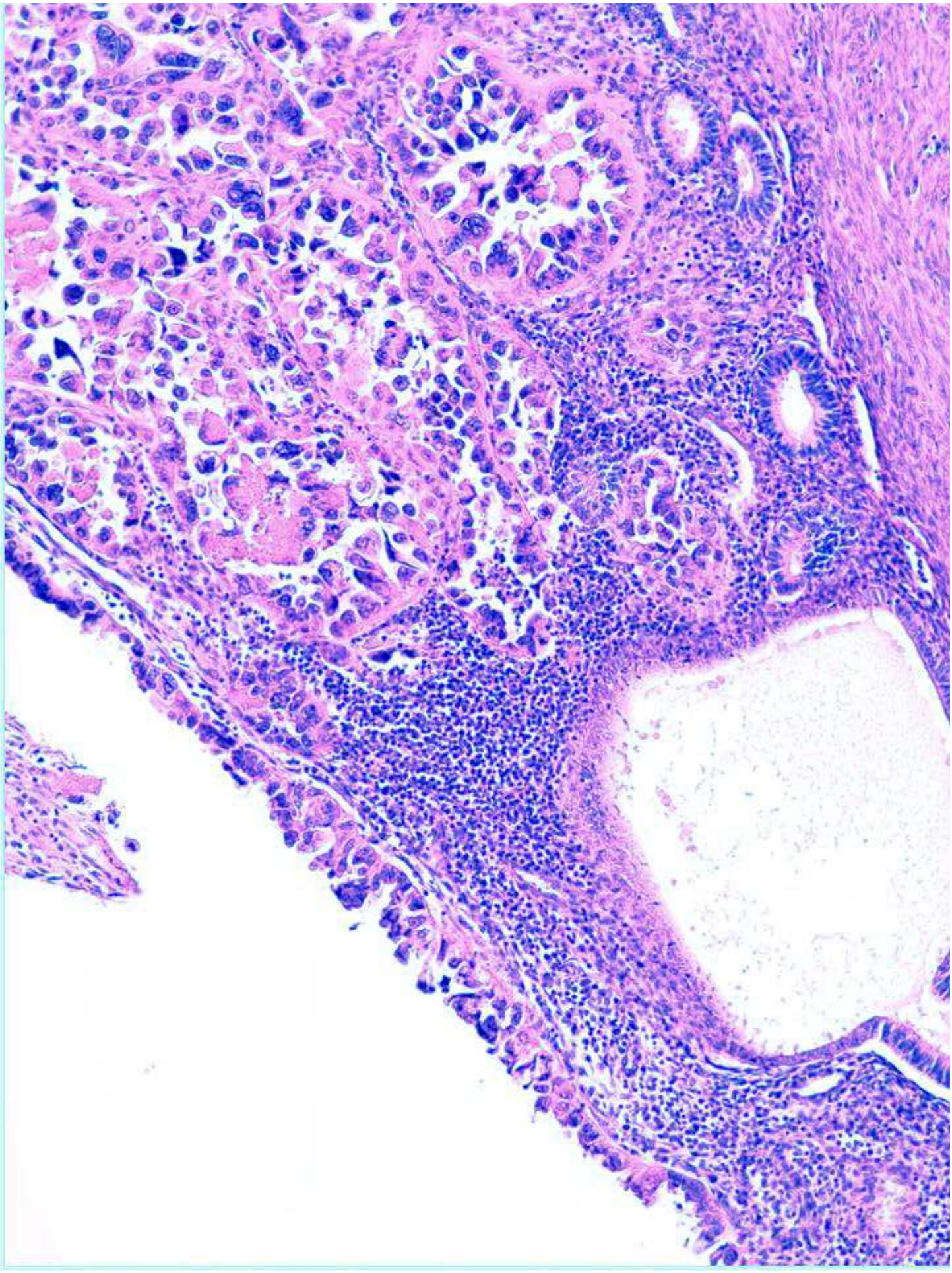
WHO 2020



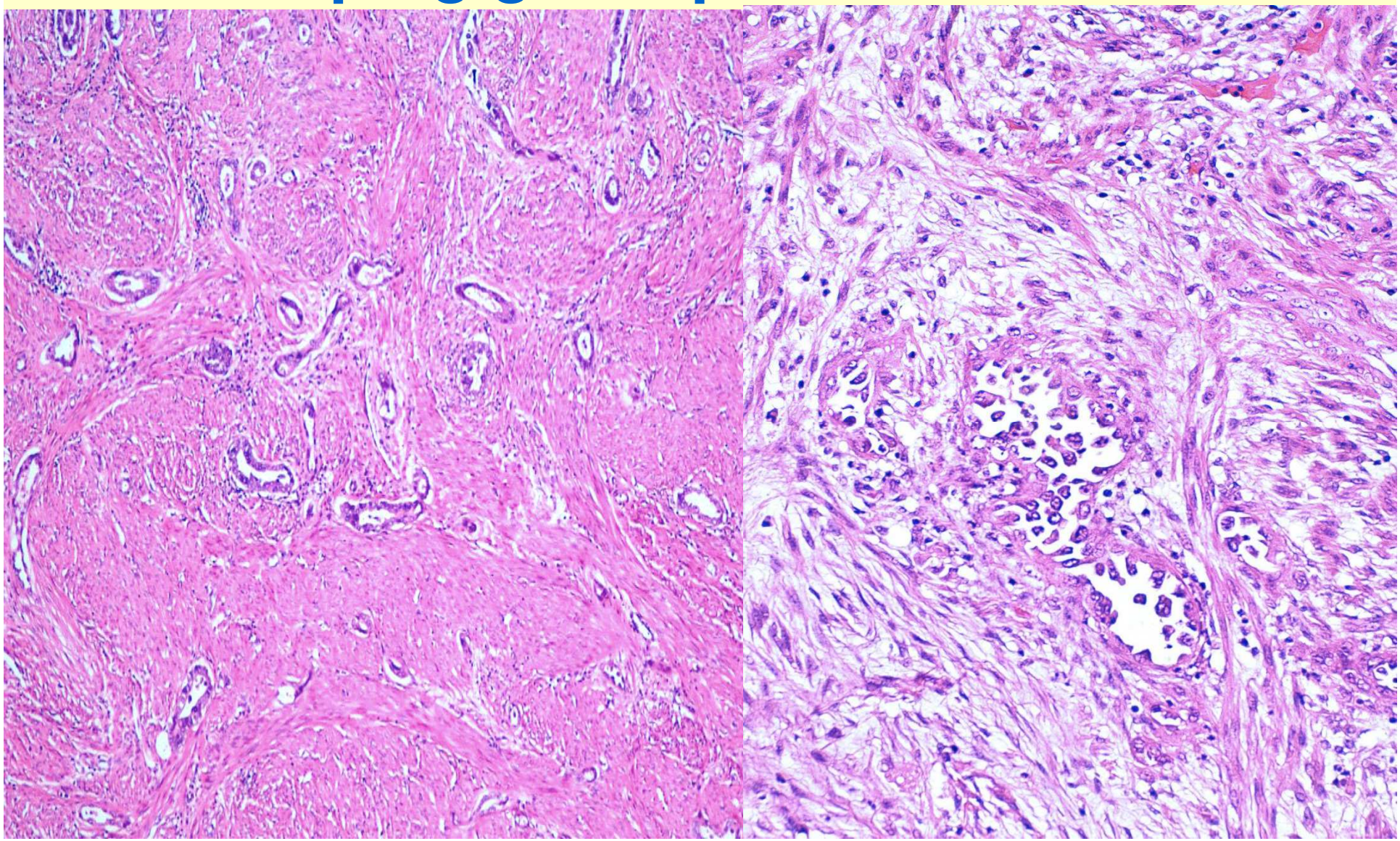
Serous carcinoma with glandular pattern
Discordant architecture/cytology







Myometrial invasion front
Gaping gland pattern/serous



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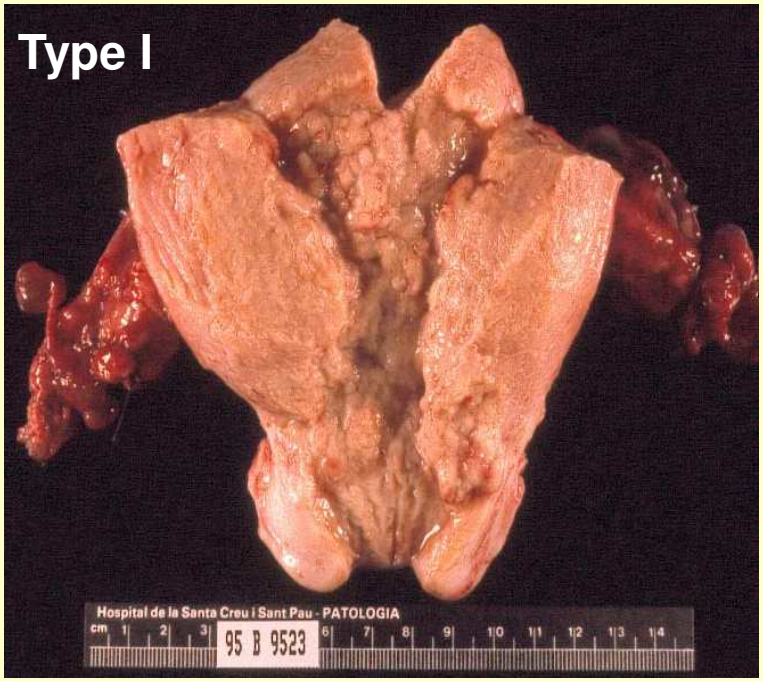
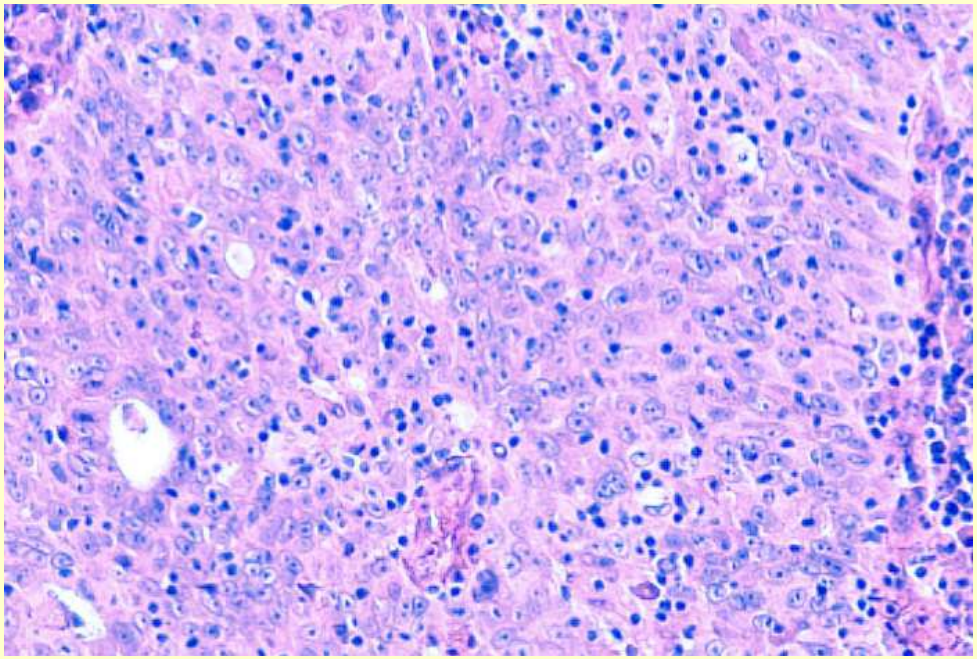
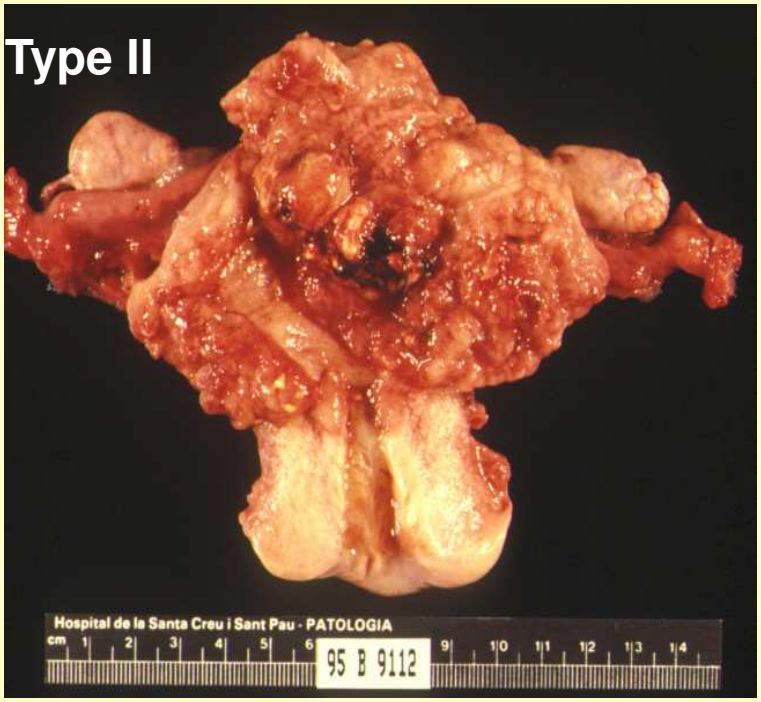
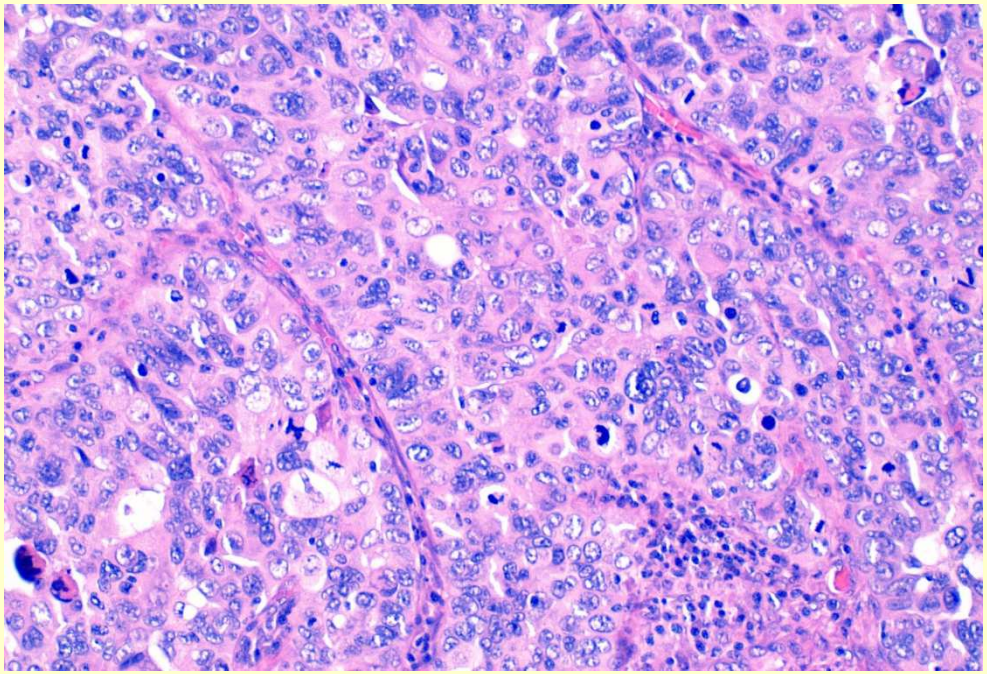
Type I





Type II





Serous Versus EEC 3 IHC Profiles

	Serous	Endometrioid 3	Pattern of staining (Serous)
	%	%	
p53	70-90%	35%	All (< 75%) or Nothing
p16	90%	10-30%	Diffuse Cytoplasmic
ER/PR	20-50%	40-80%	Nuclear
IMP2	80-95%	20%	Diffuse Cytoplasmic
IMP3	60-90 %	20%	Diffuse Cytoplasmic
PTEN loss	0-5%	50-70%	Retained Expression
ARID1A loss	0-20%	40 %	Retained Expression
β-catenin	100%	90%	Positive Membranous
HMGA-2	46-91 %	20-40 %	Positive Nuclear
FOLR-1	50-70%	30%	Positive Cytoplasmic

High-grade endometrioid carcinoma versus Serous

- **Presence of obvious endometrioid or serous features (sampling is important)**
- **Immunohistochemistry (p53, p16, mismatch repair, PTEN, ARID 1A)**
- **Molecular pathology useful in occasional cases**

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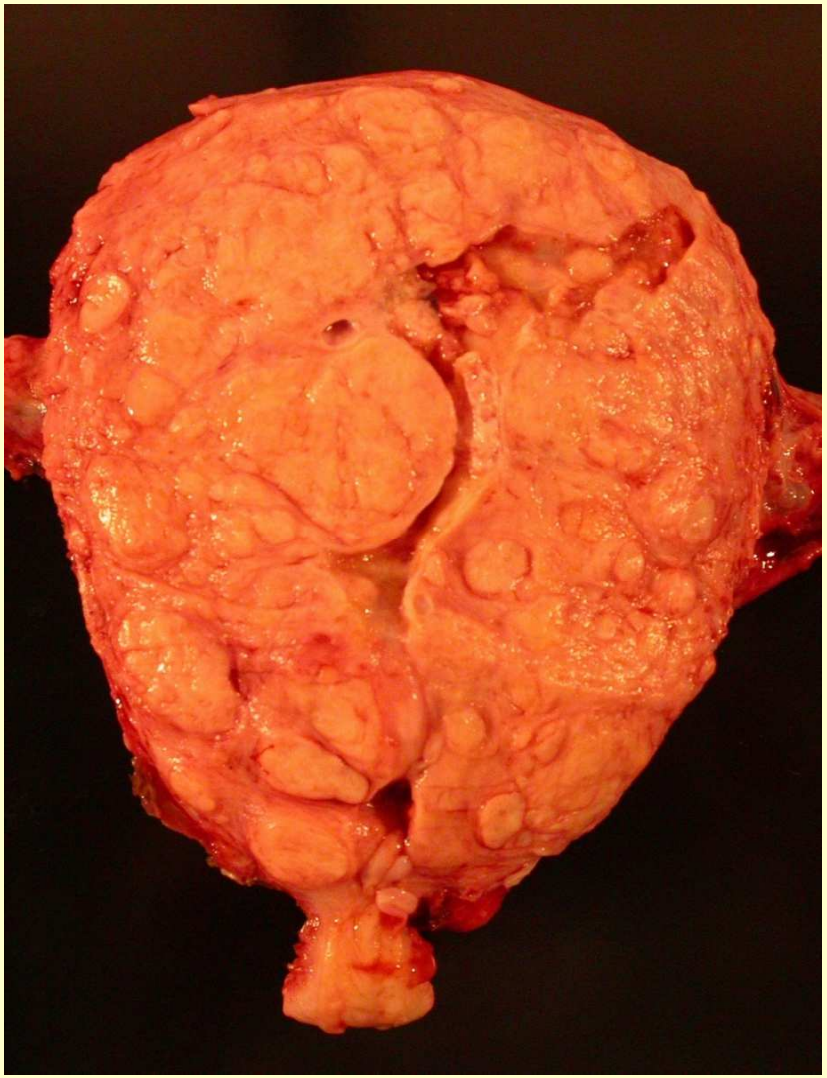
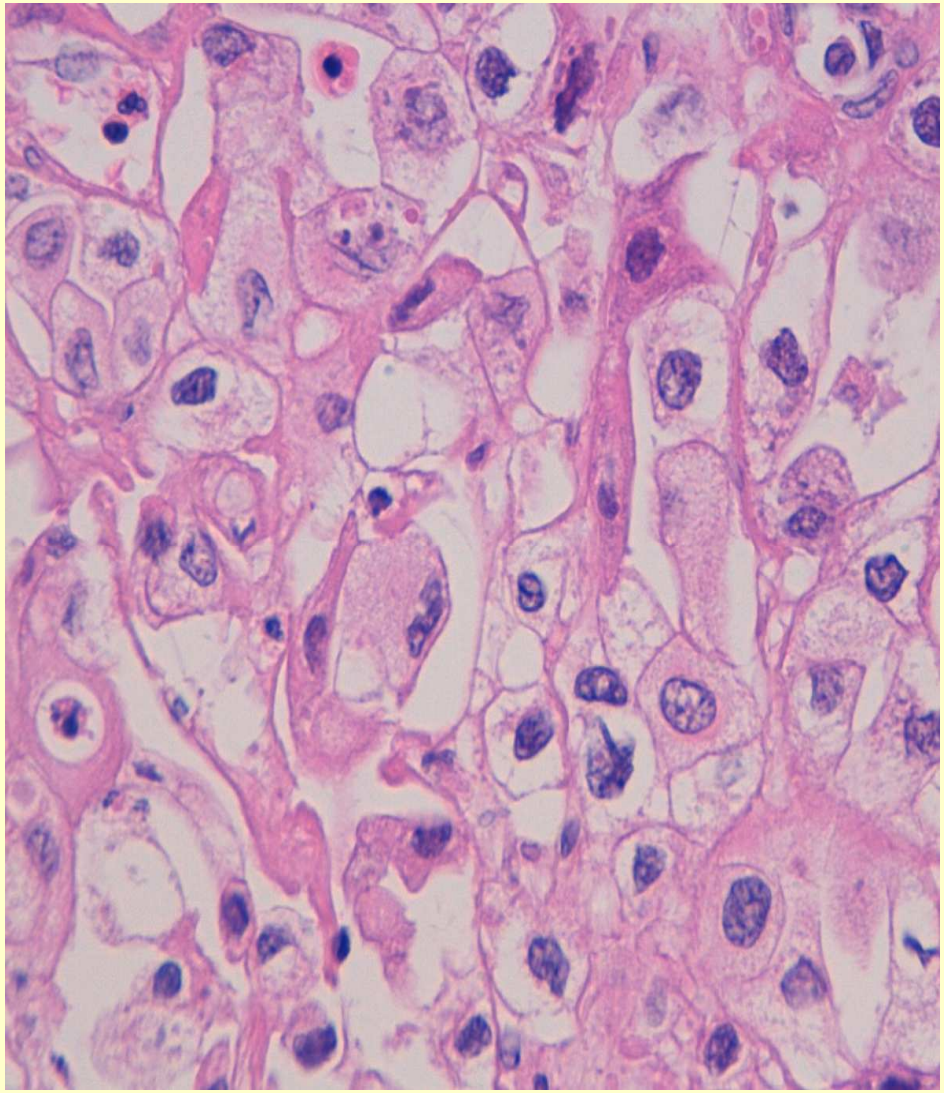
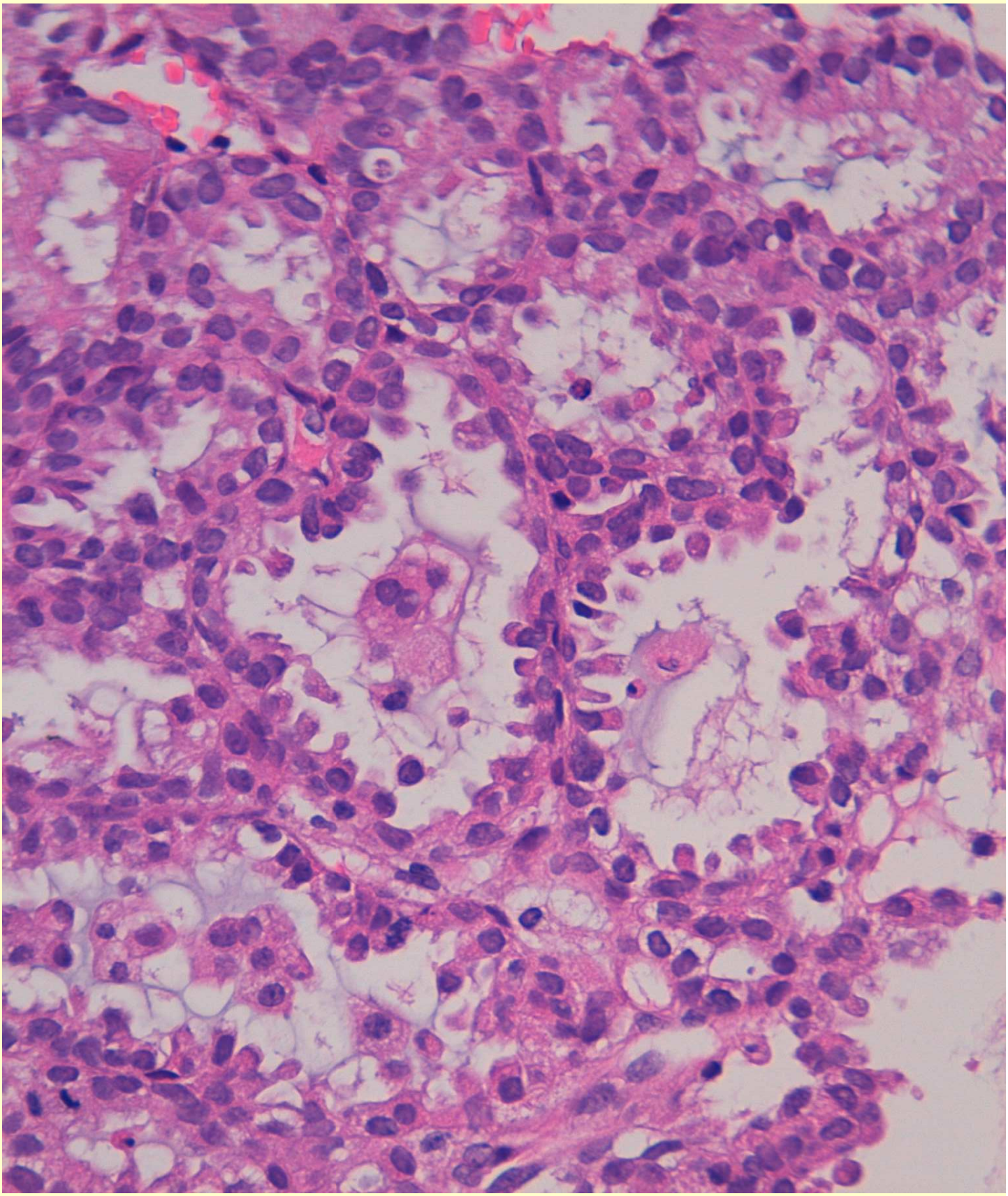
Clear cell Carcinoma of the Endometrium



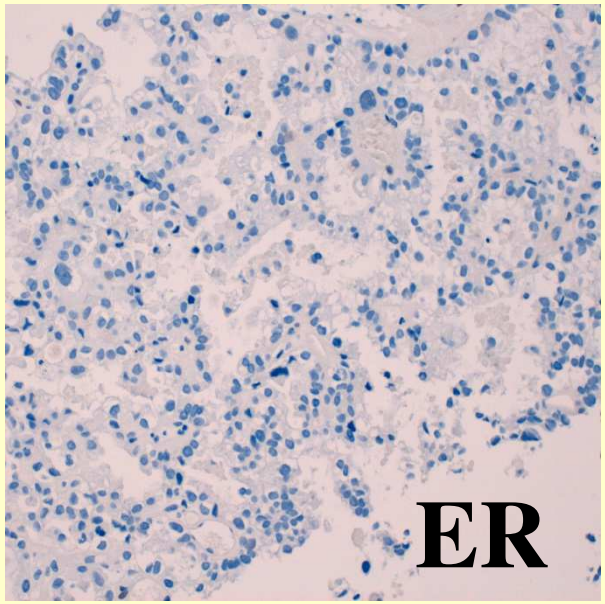


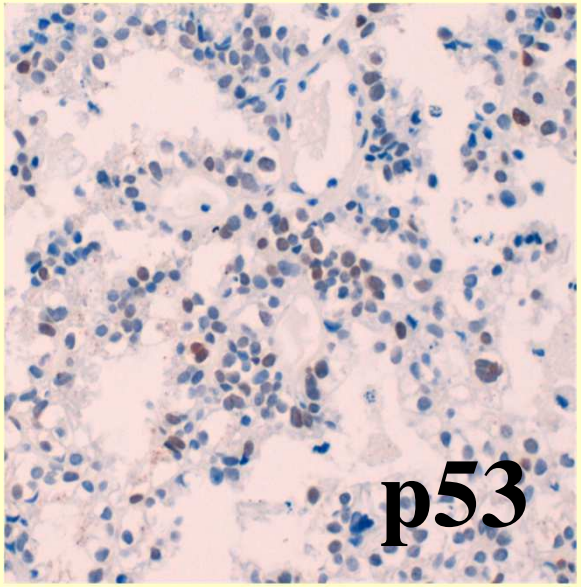


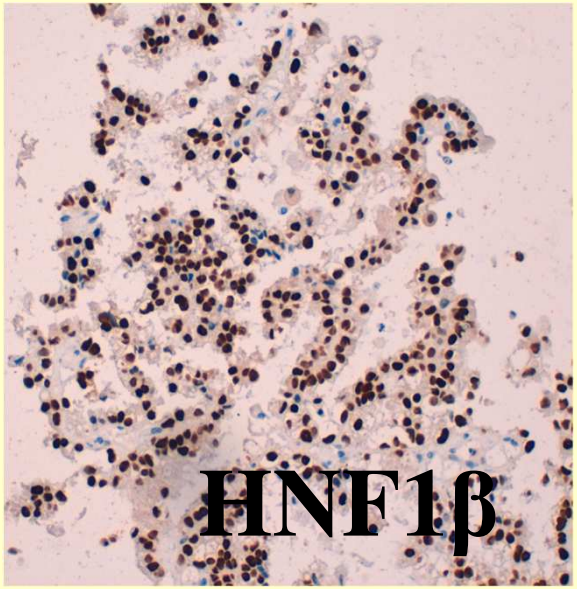
Clear Cell carcinoma of the endometrium

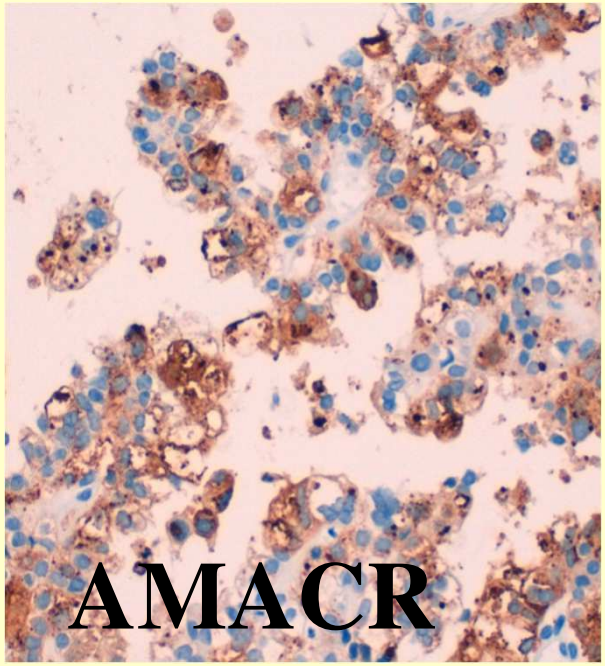
- Admixture of patterns (glandular, papillary, solid, cystic)
- Clear cells and eosinophilic cells
- Low mitotic index
- Cell stratification unusual
- Hyaline bodies, hyaline papillae, hobnail cells

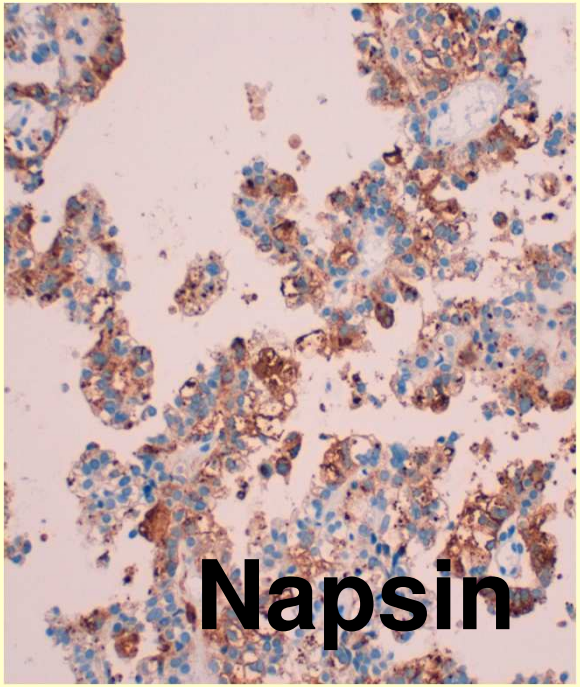
Fadare O, Am J Cancer Res 2013

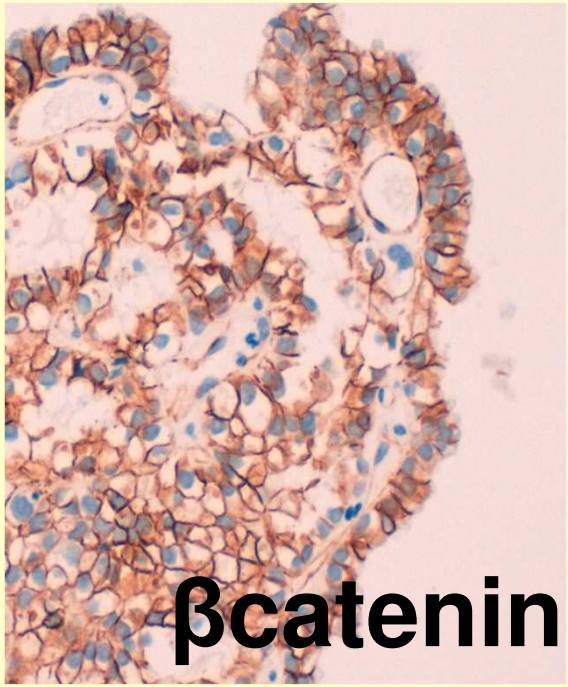

ER


p53


HNF1β


AMACR

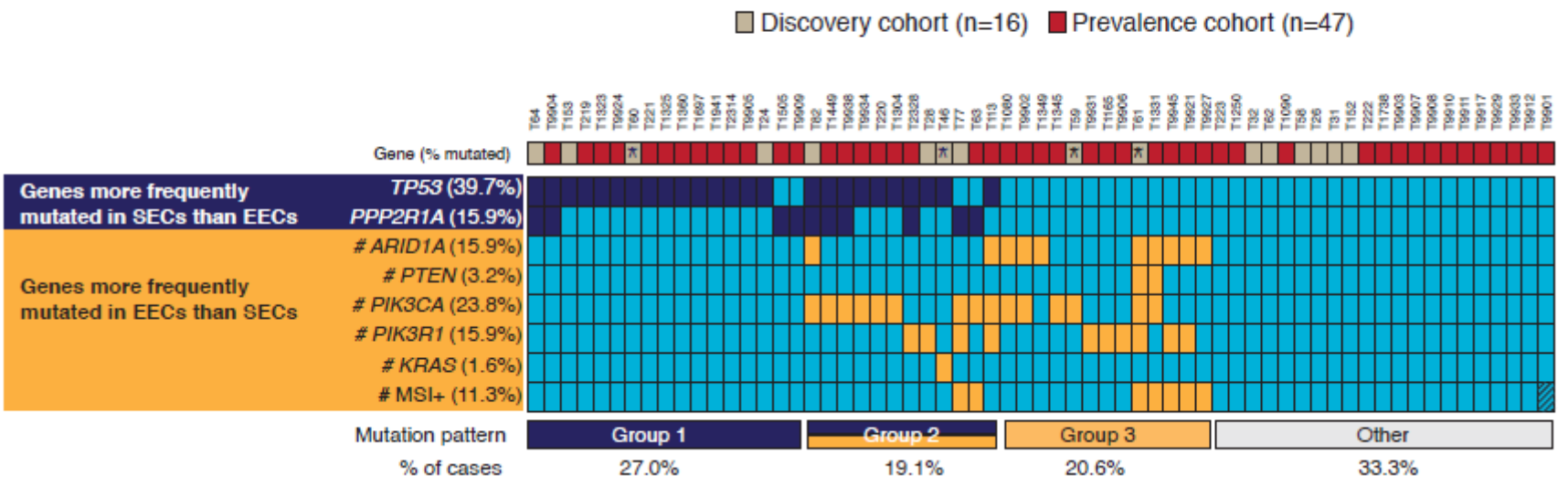

Napsin


βcatenin

Original Article

Somatic Mutation Profiles of Clear Cell Endometrial Tumors Revealed by Whole Exome and Targeted Gene Sequencing

Matthieu Le Gallo, PhD[1]; Meghan L. Rudd, MS[1]; Mary Ellen Urick, PhD[1]; Nancy F. Hansen, PhD[1]; Suiyuan Zhang, MS[2]; NISC Comparative Sequencing Program[3]; Fred Lozy, PhD[1]; Dennis C. Sgroi, MD[4,5,6]; August Vidal Bel, MD[7,8]; Xavier Matias-Guiu, MD, PhD[8,9]; Russell R. Broaddus, MD, PhD[10]; Karen H. Lu, MD[10]; Douglas A. Levine, MD[11]; David G. Mutch, MD[12]; Paul J. Goodfellow, PhD[13]; Helga B. Salvesen, MD, PhD[14,15†]; James C. Mullikin, PhD[1,3]; and Daphne W. Bell, PhD[1]



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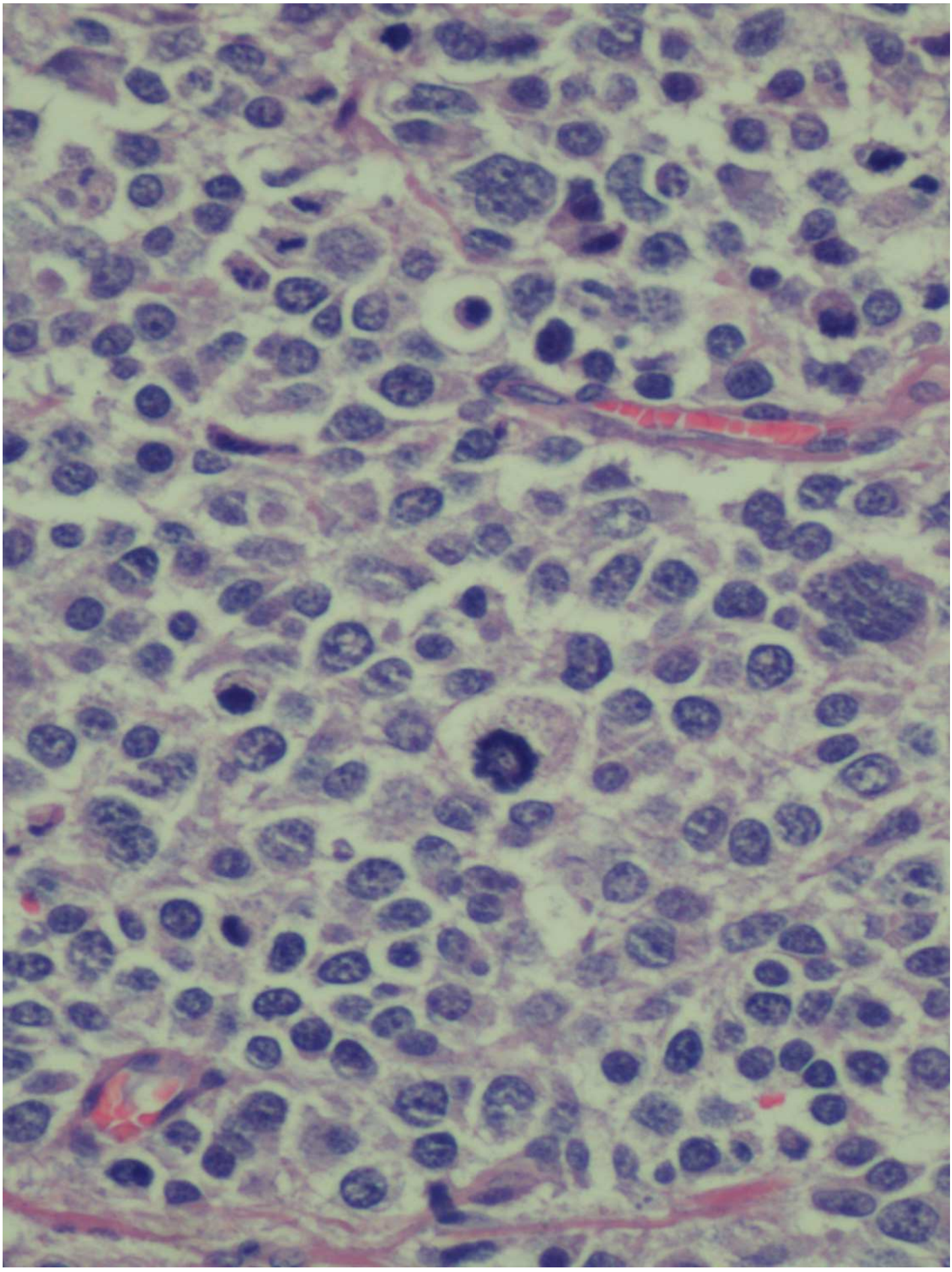
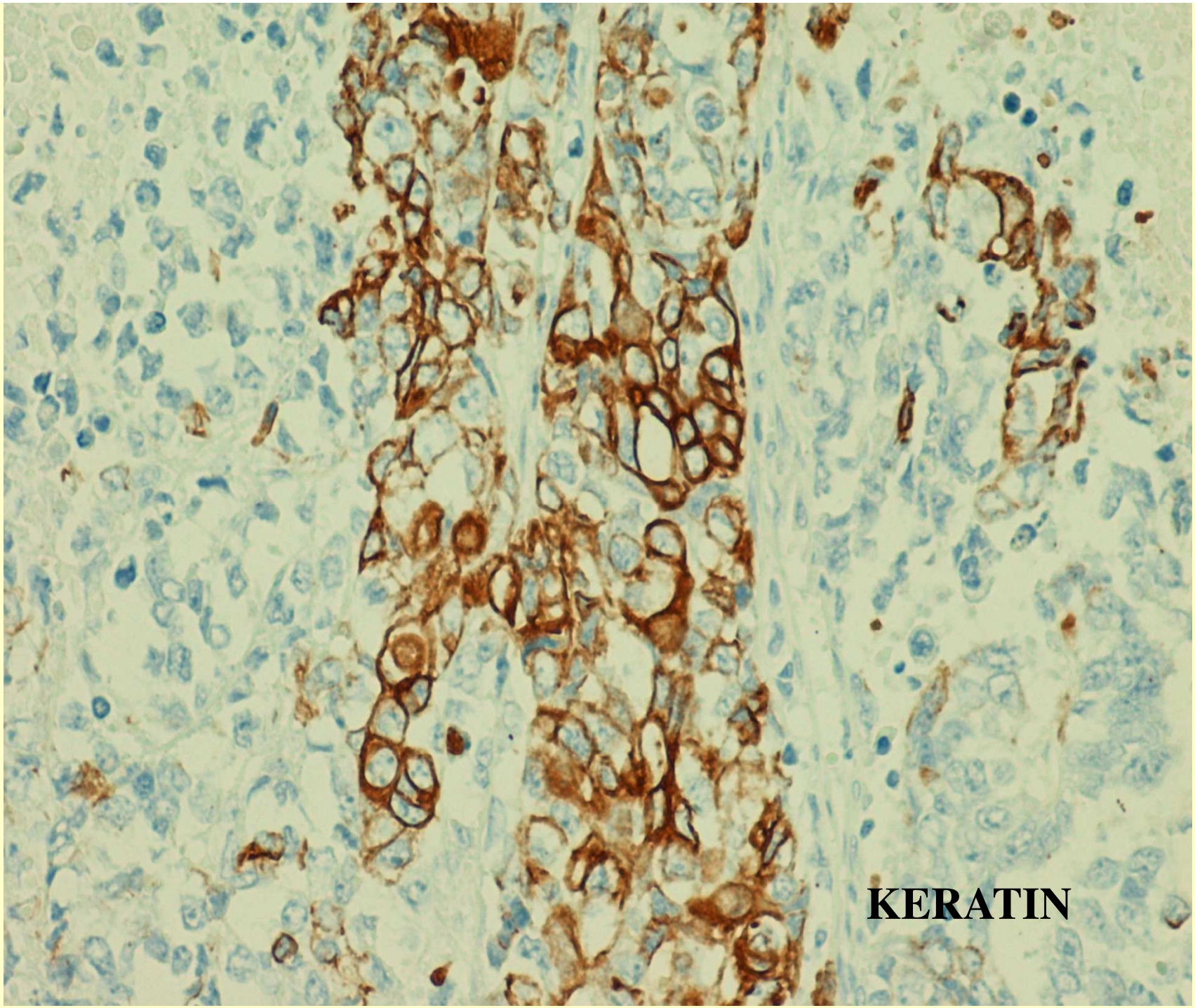
Undifferentiated Carcinoma of the Endometrium

- Unusual
- Solid sheets of epithelial cells, sometimes plasmacytoid-like
- Necrosis, mitosis
- Monotonous or pleomorphic
- 5-10% positive for keratins; Positivity for EMA,
- Negative for E-cadherin, PAX8
- Frequent mismatch repair deficiency

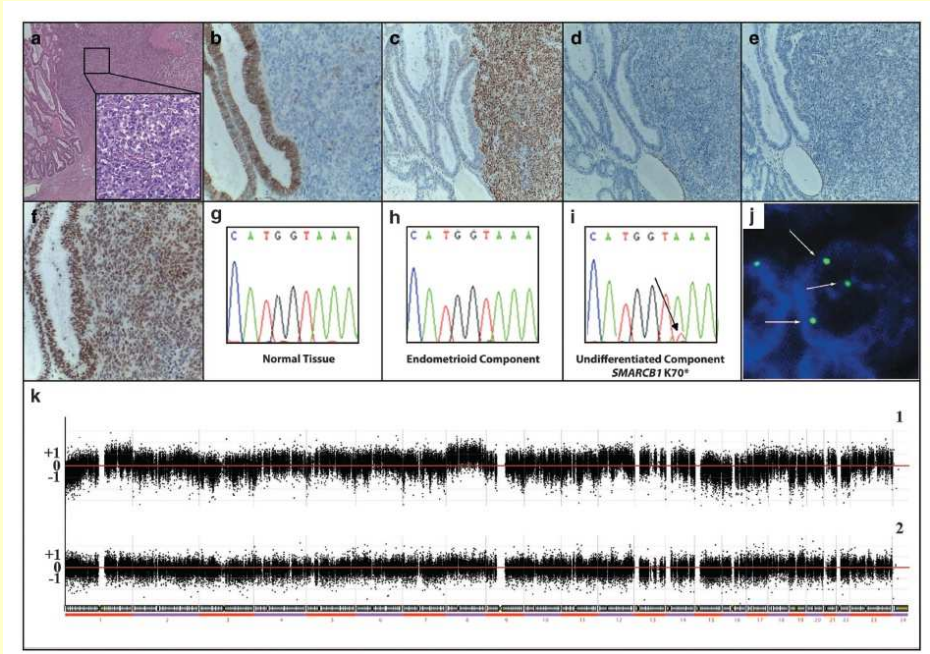


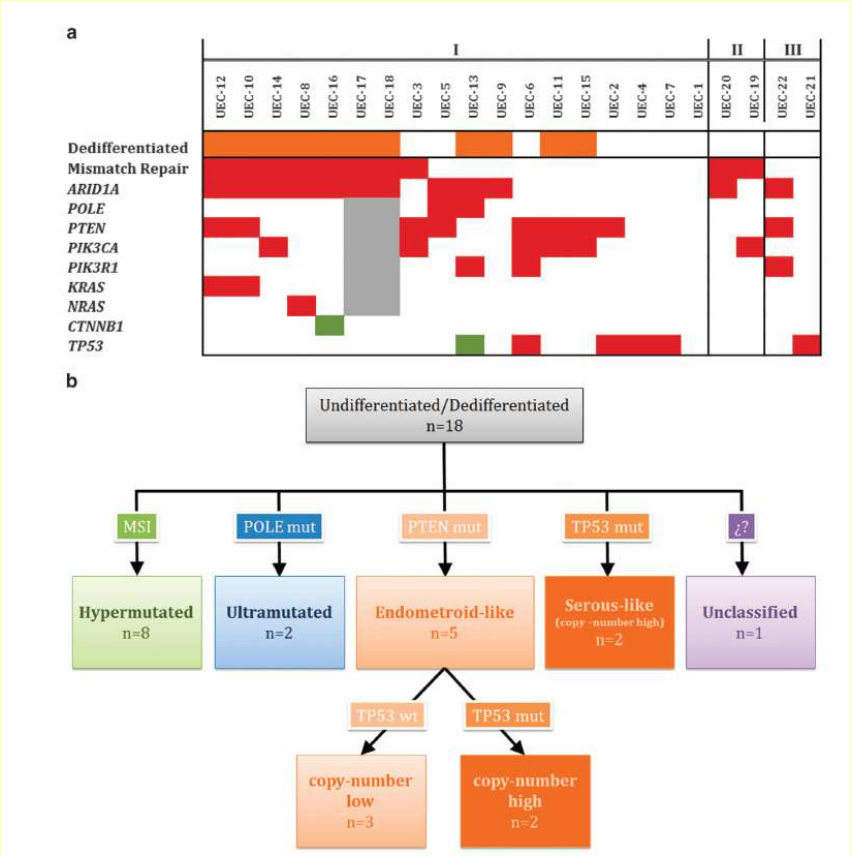

KERATIN

Modern Pathology (2016), 1–9

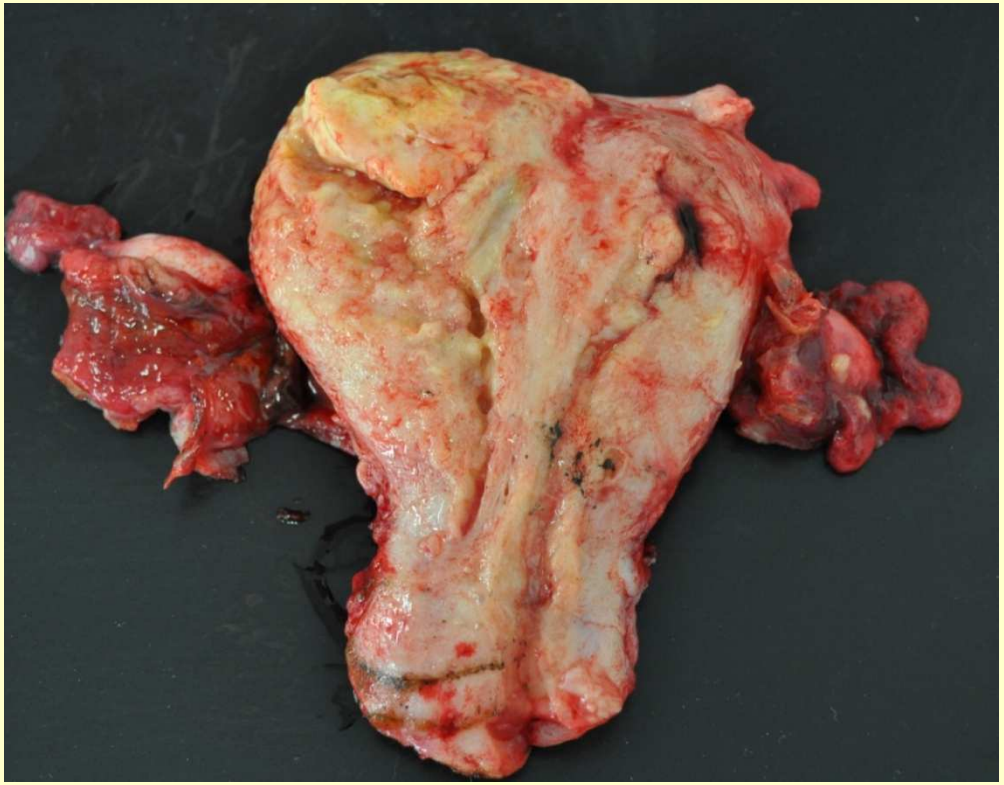
Molecular genetic heterogeneity in undifferentiated endometrial carcinomas

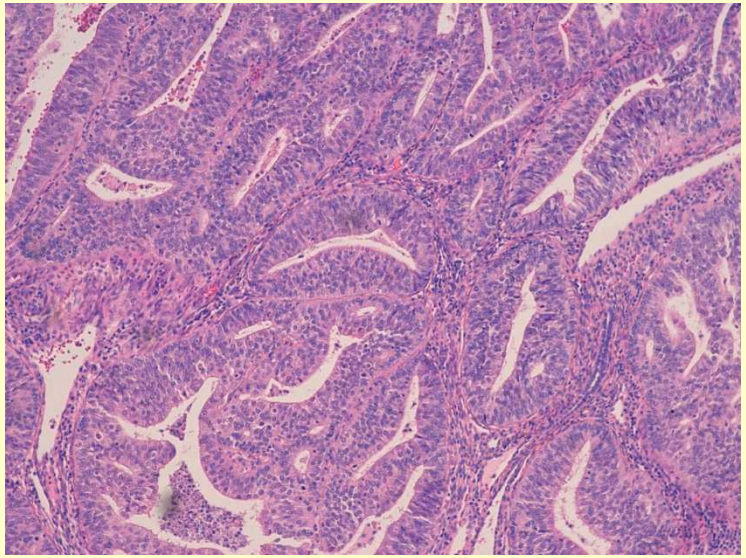
Juan M Rosa-Rosa[1], Susanna Leskelä[1], Eva Cristóbal-Lana[1], Almudena Santón[1], Ma Ángeles López-García[2], Gloria Muñoz[3], Belen Pérez-Mies[1], Michele Biscuola[2], Jaime Prat[4], Oliva E Esther[5], Robert A Soslow[6], Xavier Matias-Guiu[7,8] and Jose Palacios[1]

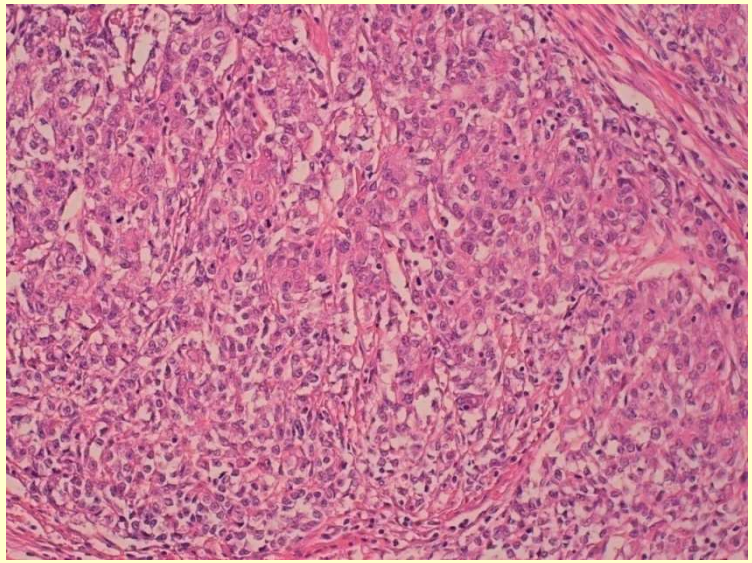




In De-Differentiated carcinoma, both endometrioid and undifferentiated components are clonal.







Kuhn E, Ayhan A, Bahadirli-Talbott A, Zhao C, Shih IeM. Molecular characterization of undifferentiated carcinoma associated with endometrioid carcinoma. Am J Surg Pathol. 2014. 38:660-5

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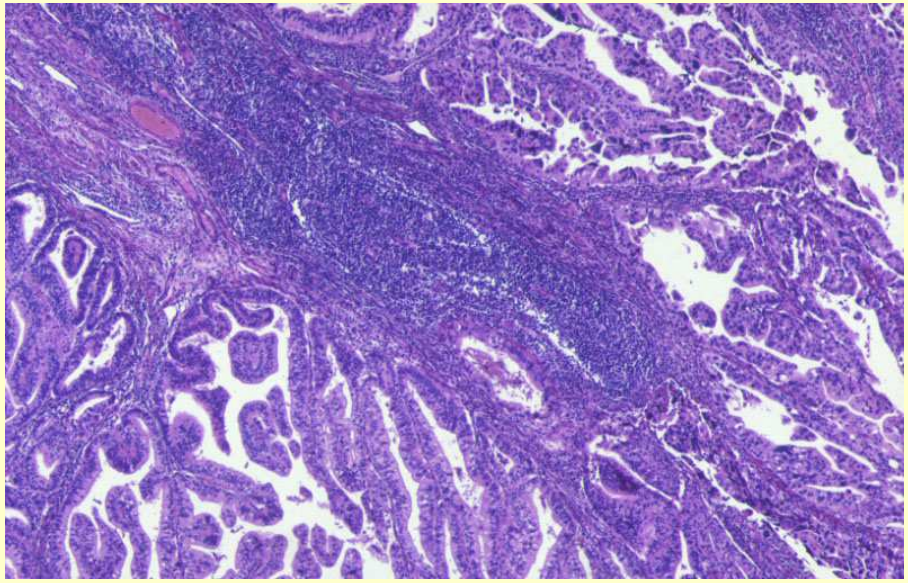
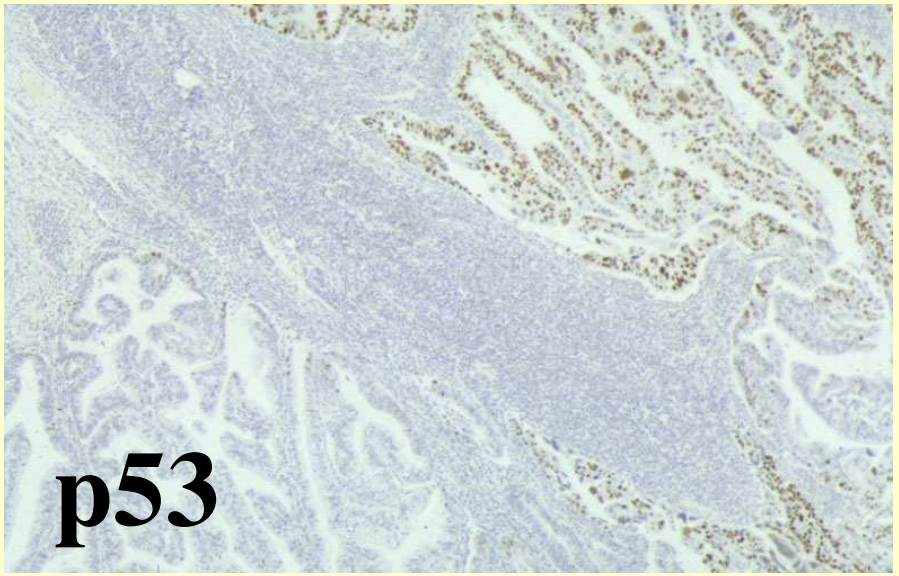
Mixed Endometrioid-Serous carcinomas





Virchows Arch (2015) 466:415–422
DOI 10.1007/s00428-015-1728-5

ORIGINAL ARTICLE

Mutation profile and clinical outcome of mixed endometrioid-serous endometrial carcinomas are different from that of pure endometrioid or serous carcinomas

L. Coenegrachts · D. A. Garcia-Dios · J. Depreeuw · M. Santacana · S. Gatius · M. Zikan · P. Moerman · L. Verbist · D. Lambrechts · Xavier Matias-Guiu · Frédéric Amant

	EEC in mixed	Pure EEC	SC in mixed	Pure SC
PTEN	11.8 %	19.6%	7.1%	2.9%
p53	8.8%	1.7%	14.3%	17.1%

Hussein Y, Weigelt B, Levine D, Schoolmeester JK, Dao LN, Balzer BL, Liles G, Karlan B, Köbel M, Lee C, Soslow RA

Clinicopathological analysis of endometrial carcinomas harboring somatic POLE exonuclease domain mutations

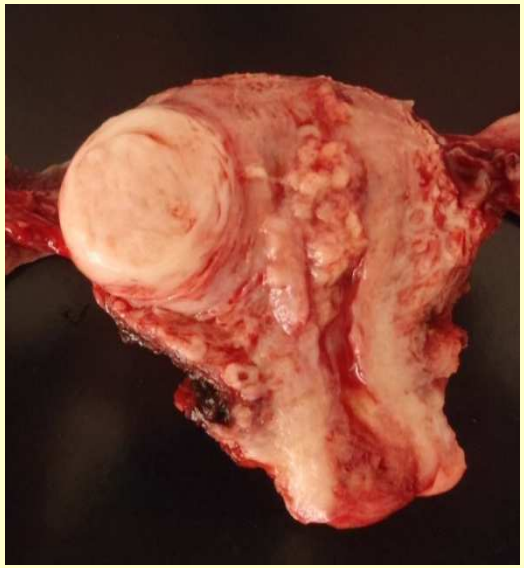
Mod Pathol 2015 28:505-14

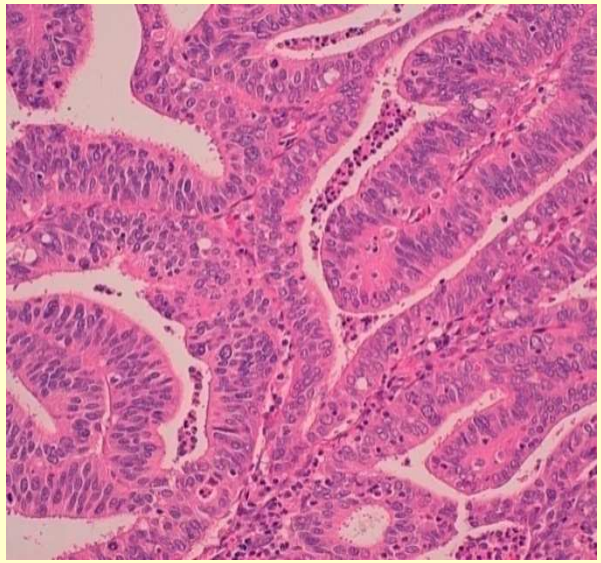
Conlon N, Da Cruz A, Ashley C , Segura S, De Brot L, M da Silva E, Soslow RA, Weigelt B, DeLair D:

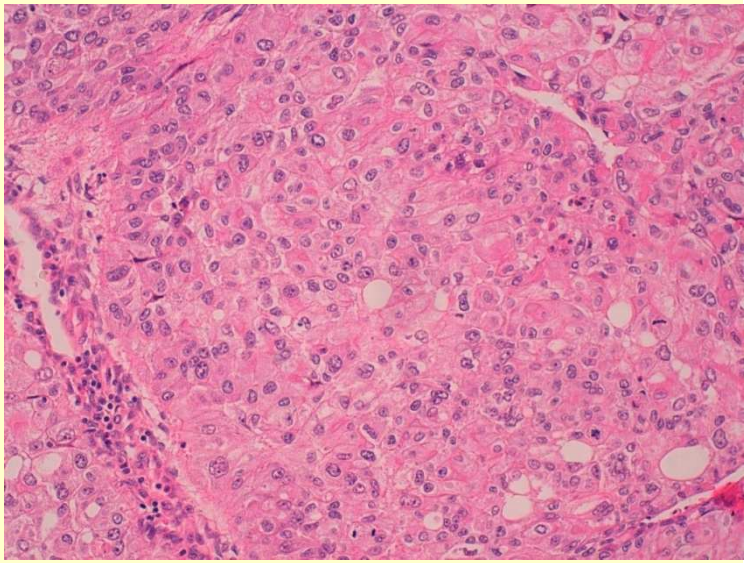
Endometrial Carcinomas with a "Serous" Component in Young Women Are Enriched for DNA Mismatch Repair Deficiency, Lynch Syndrome, and POLE Exonuclease Domain Mutations

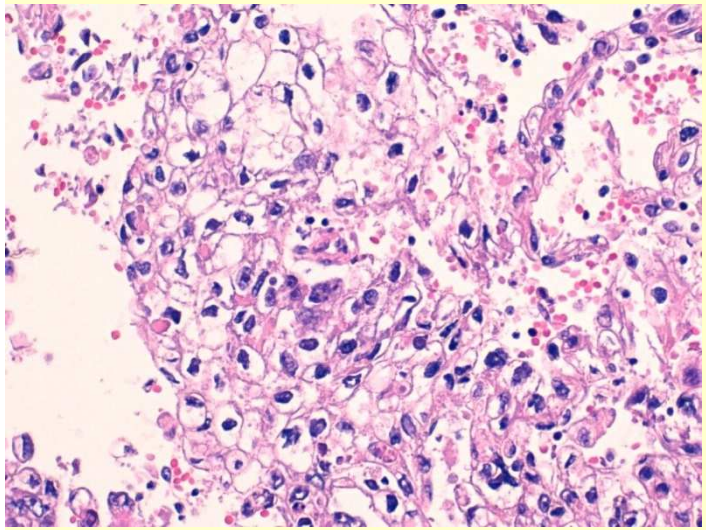
Am J Surg Pathol . 2020 44:641-648

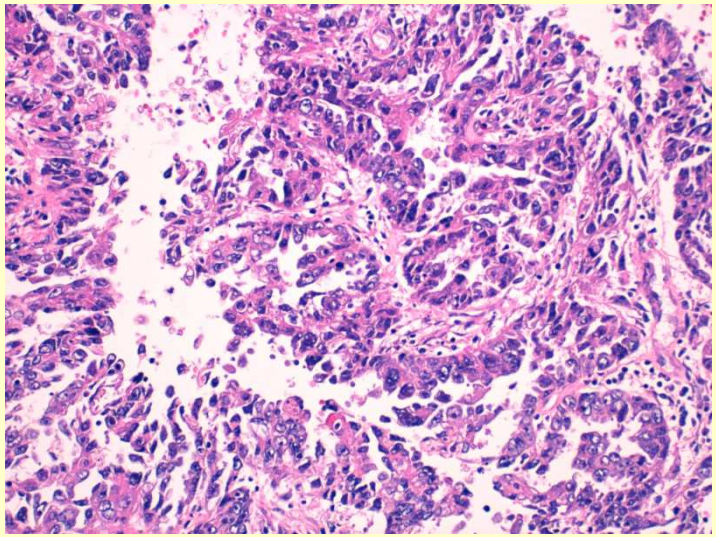
Heterogenous POLE-mutated EC

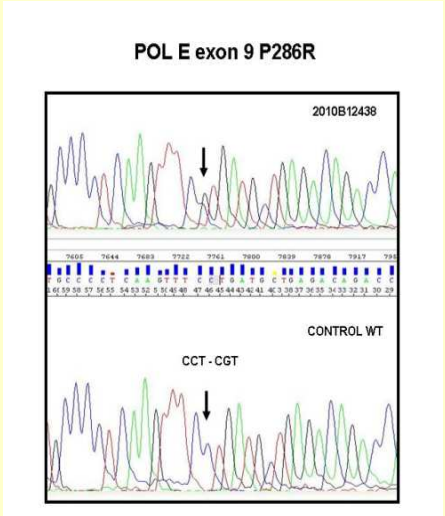










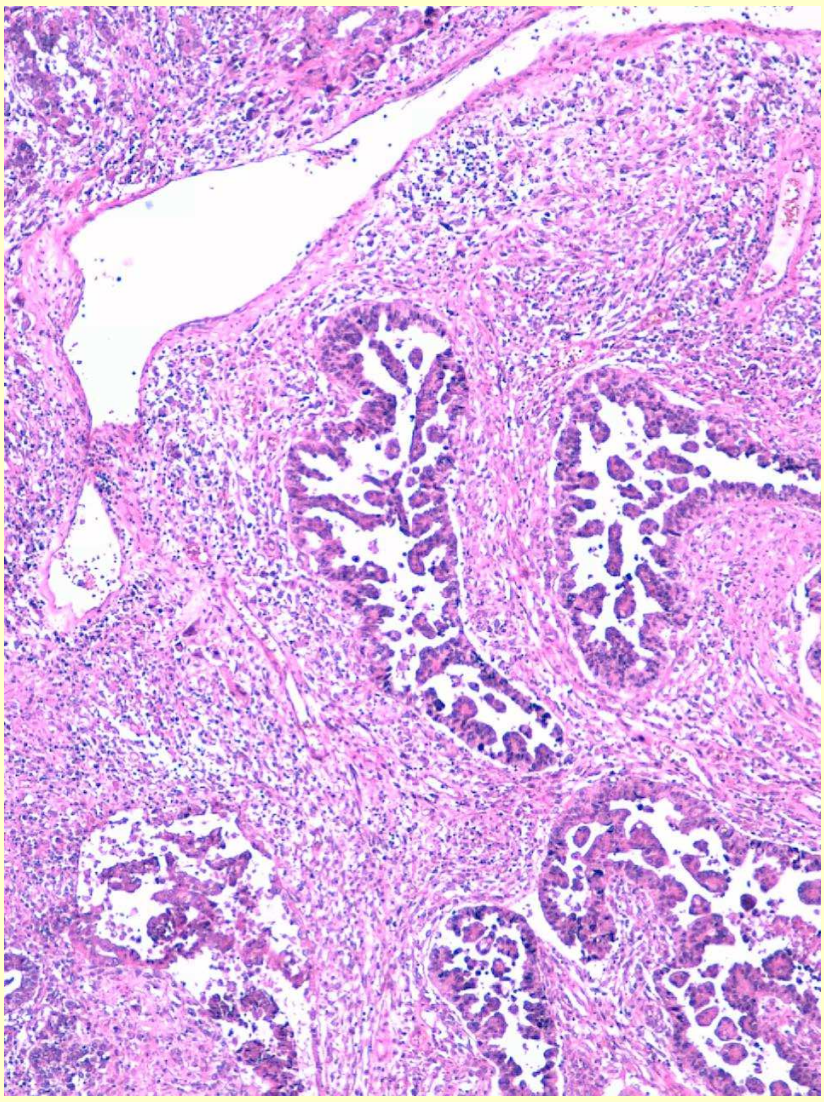


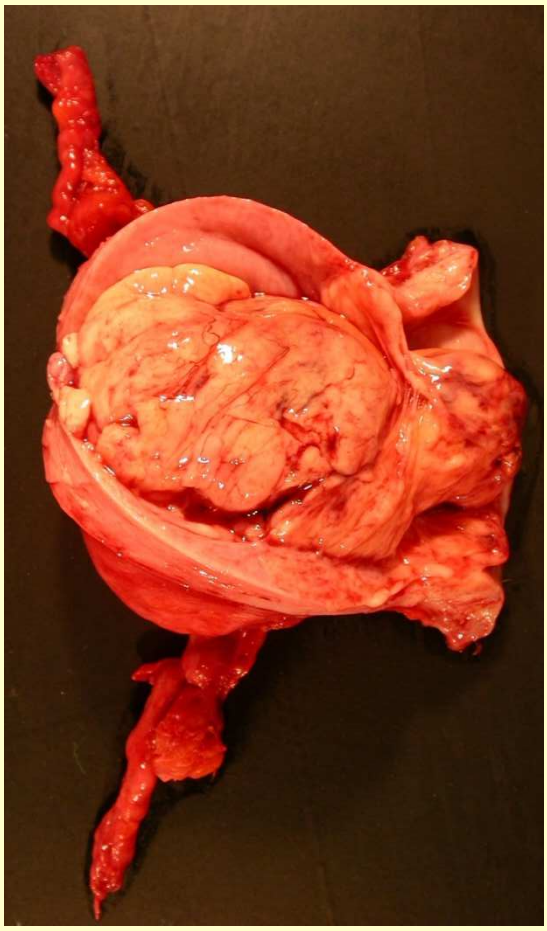
Endometrial carcinoma (Histological Classification)

1- Endometrioid carcinoma (G1/2) (G3)
2- Serous carcinoma
3- Clear cell carcinoma
4- Undifferentiated-Dedifferentiated carcinoma
5- Mixed carcinoma
6- Other
7- Carcinosarcoma

Neuroendocrine carcinoma

WHO 2019





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7- Carcinosarcoma

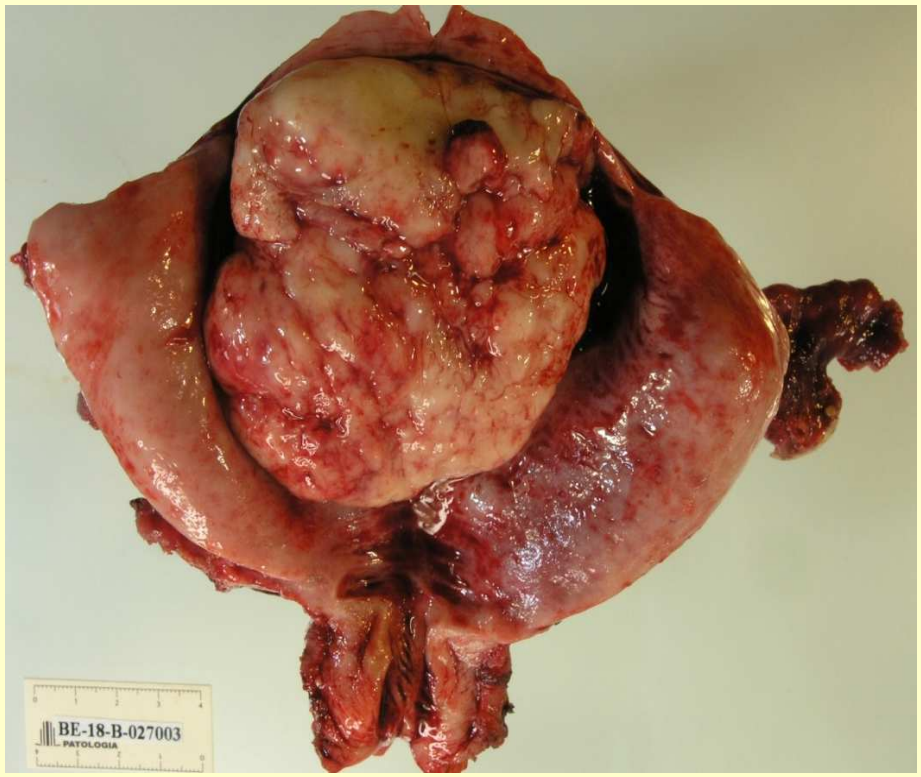
Neuroendocrine carcinoma

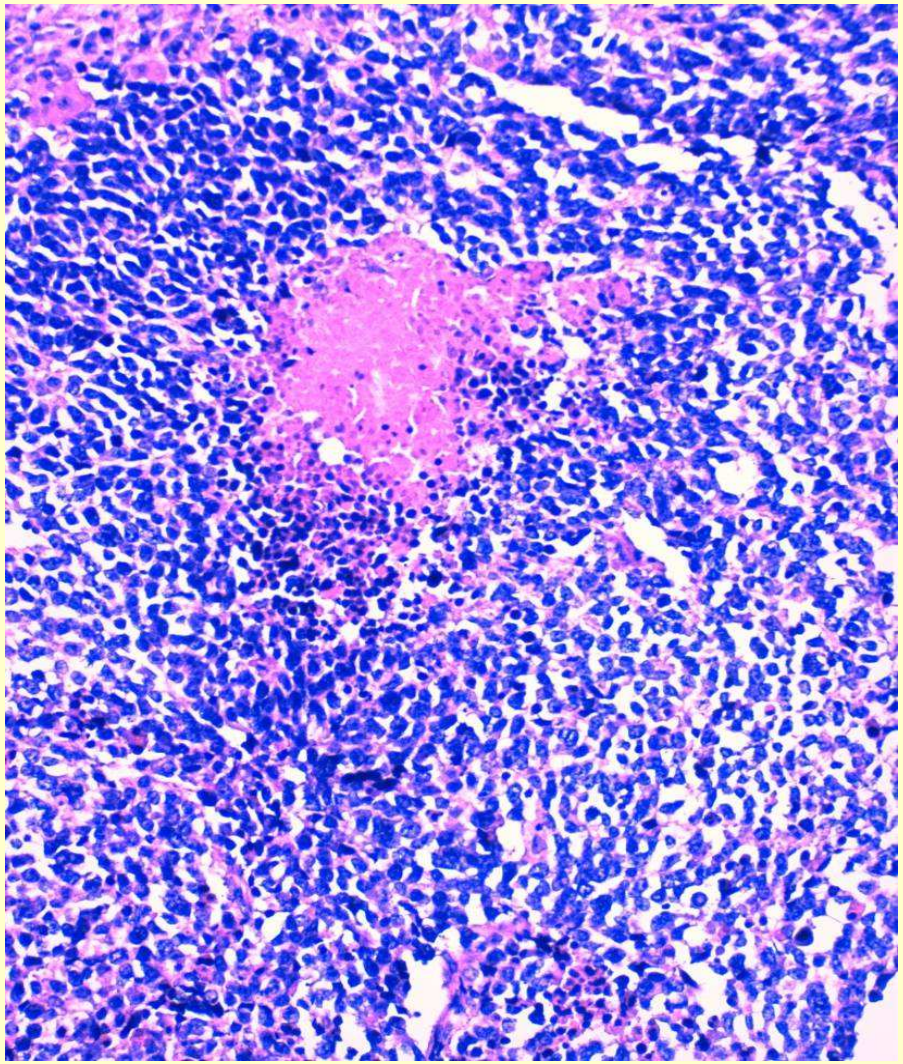
WHO 2019

Neuroendocrine Carcinoma of the Endometrium

- Pure or mixed, most often with endometrioid carcinoma
- Large cell, small cell, mixed
- Positive for Synaptophysin, chromogranin A or CD56), and may be negative for keratins
- p16 and CD117 may be positive
- Mismatch repair deficiency in some cases
- Some overlap with undifferentiated ca
- 50% of patients died of disease.

Neuroendocrine Carcinoma of the Endometrium





Endometrial carcinoma (Histological Classification)

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Neuroendocrine carcinoma

WHO 2019

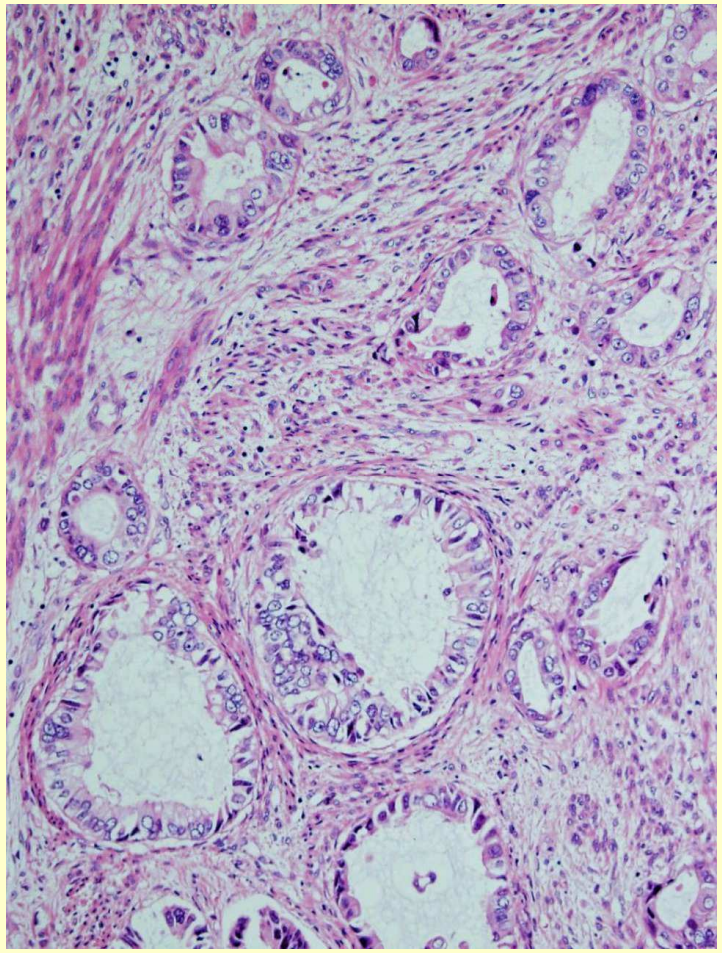
Endometrial cancer (Emerging Entities)

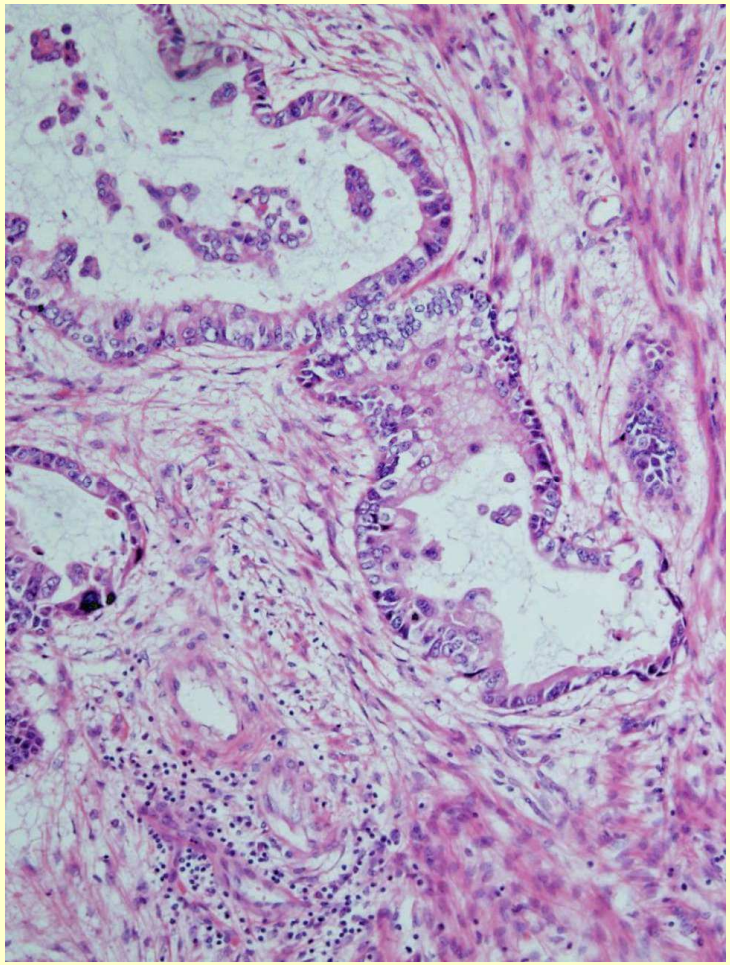
- Gastric-Type adenocarcinoma
- Mesonephric-like adenocarcinoma

Gastric- type adenocarcinoma of the endometrium

- Similar to the cervical tumor
- A few cases described in Japan and USA
- Cells with mucinous appearance, distinct cytoplasmic borders, gastro-intestinal differentiation
- Worse behaviour than mucinous “endometrioid” tumors.
- Deep myoinvasion, positive LNs.

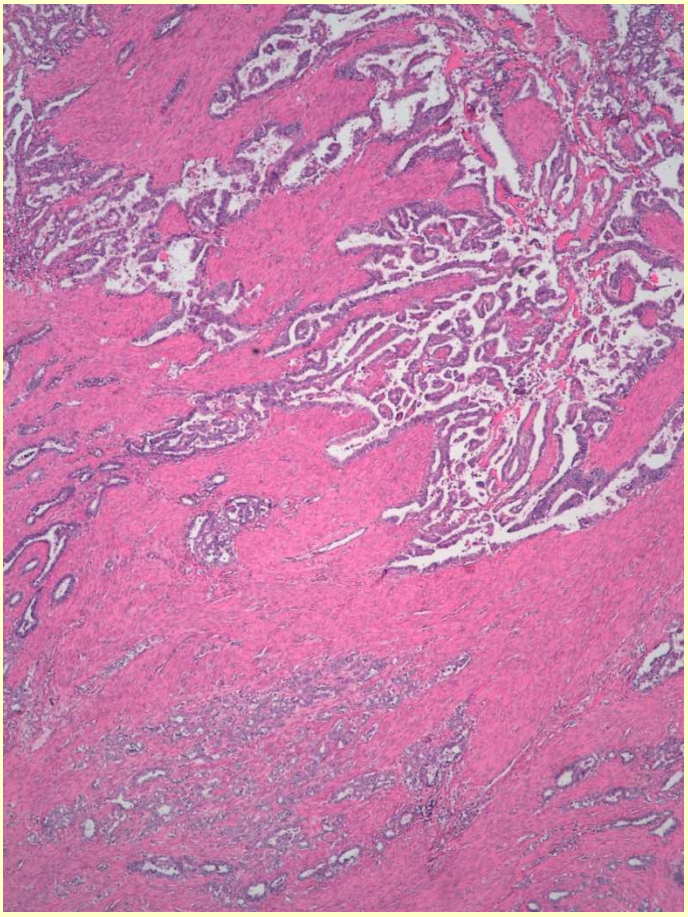
Gastric- type adenocarcinoma of the endometrium

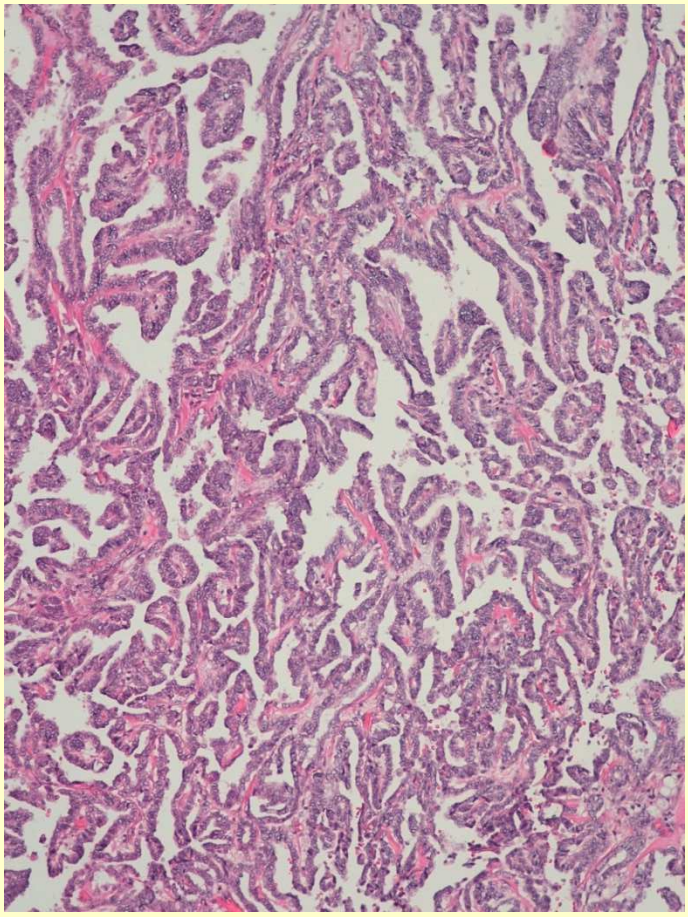


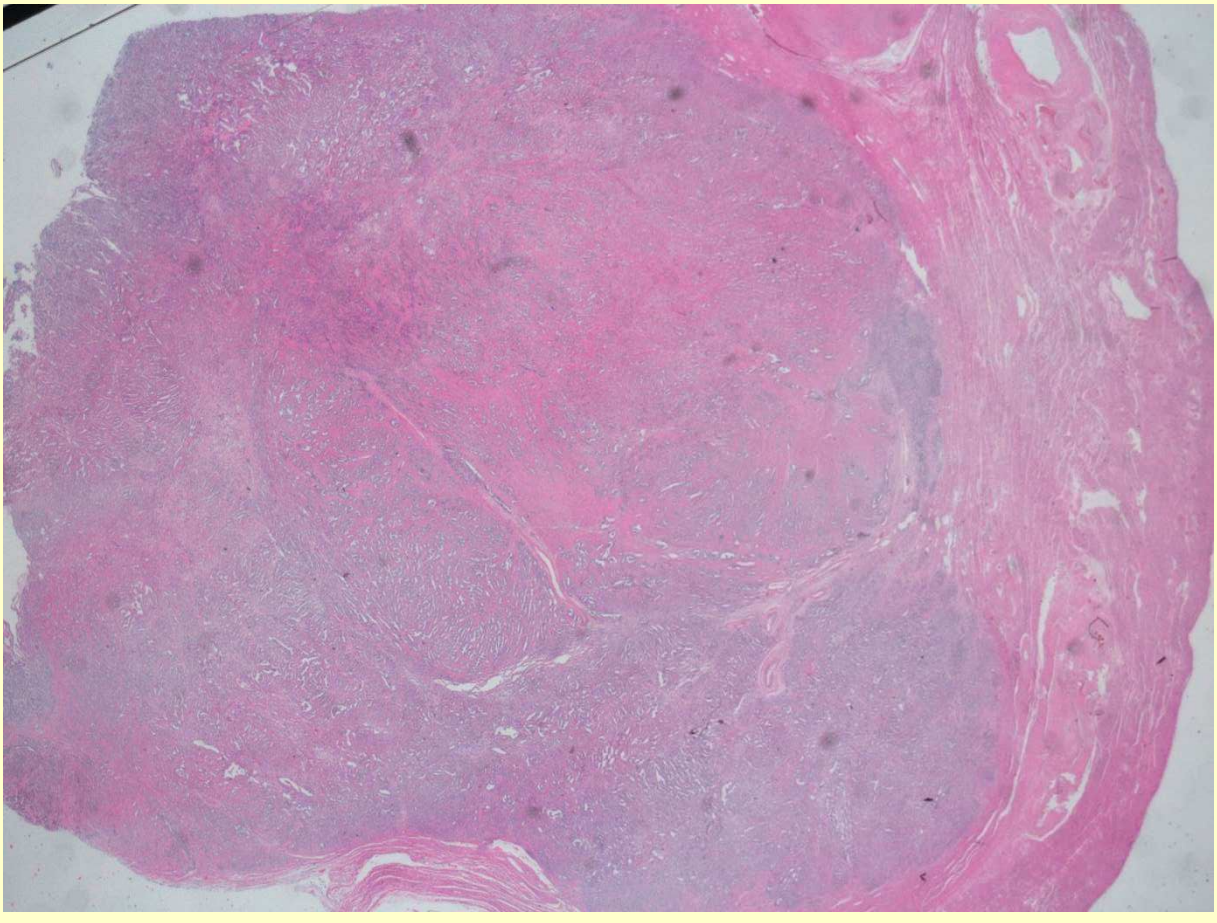


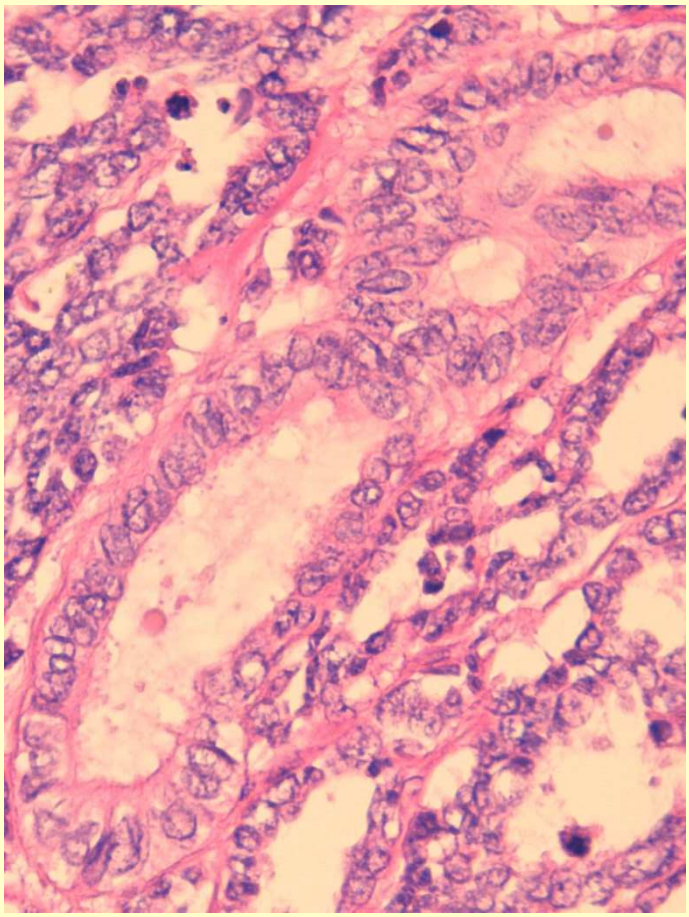
Mesonephric-like adenocarcinoma of the endometrium

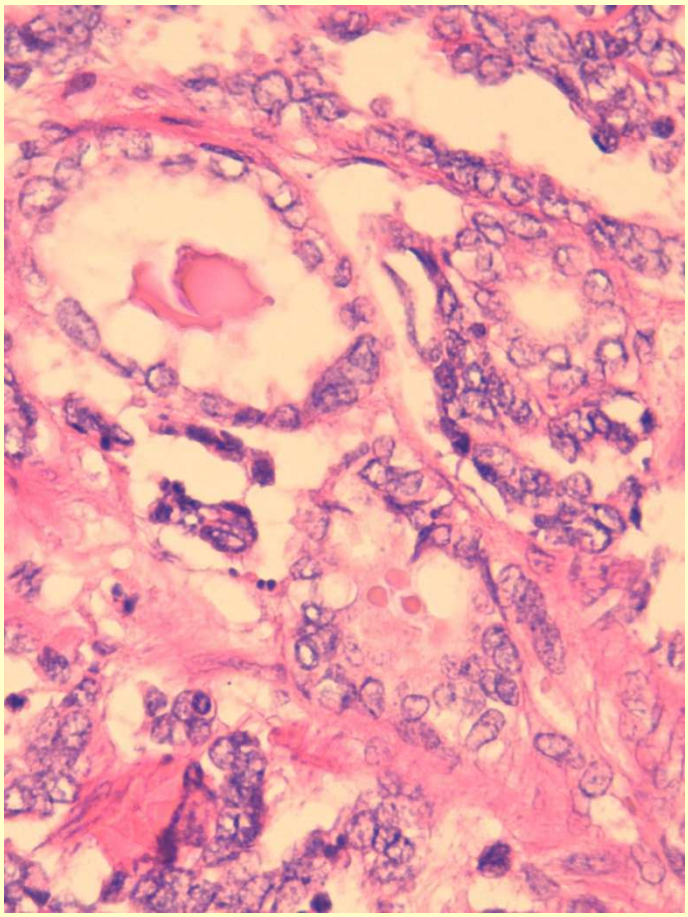
- Similar to the cervical mesonephric carcinoma
- Admixture of architectural patterns (small tubules/glands, colloid-like material, papillary, solid) (similar to thyroid carcinomas)
- Positive for PAX8, TTF1, CD10, GATA3, calretinin
- Negative for ER/PR, WT1
- p53 wild-type,
- Visceral metastasis











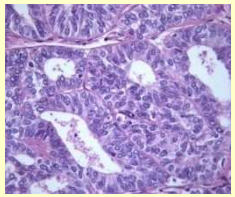
Pathologic classification strenghts

- Different types of tumors with different morphologic features, precursor lesions, natural histories, and molecular features

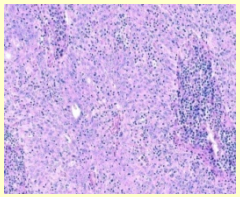
- Pathologic classification allows distinction between low grade (70%) and high grade tumors (30%) , which is prognostically relevant.

LOW GRADE AND HIGH GRADE ENDOMETRIAL CARCINOMAS

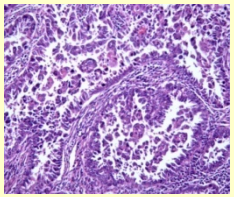
70%
EEC 1,2



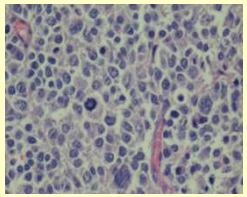
17%
EEC 3

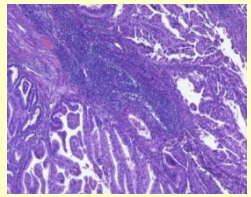


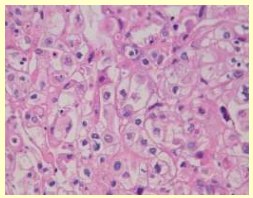
10%
SC



3%
other
Undiff
Mixed
Clear
Cell







LOW-GRADE

HIGH-GRADE

Pathologic classification limitations

1-Poor interobserver reproducibility in high grade carcinomas

2- Some histotypes are heterogenous regarding prognosis (grade 3 EEC)

3- In the high grade group, maybe histologic typing is not as relevant as in the low grade group

Summary

- Pathologic Classification
- Molecular Classification

Endometrial carcinoma
TCGA, 2013

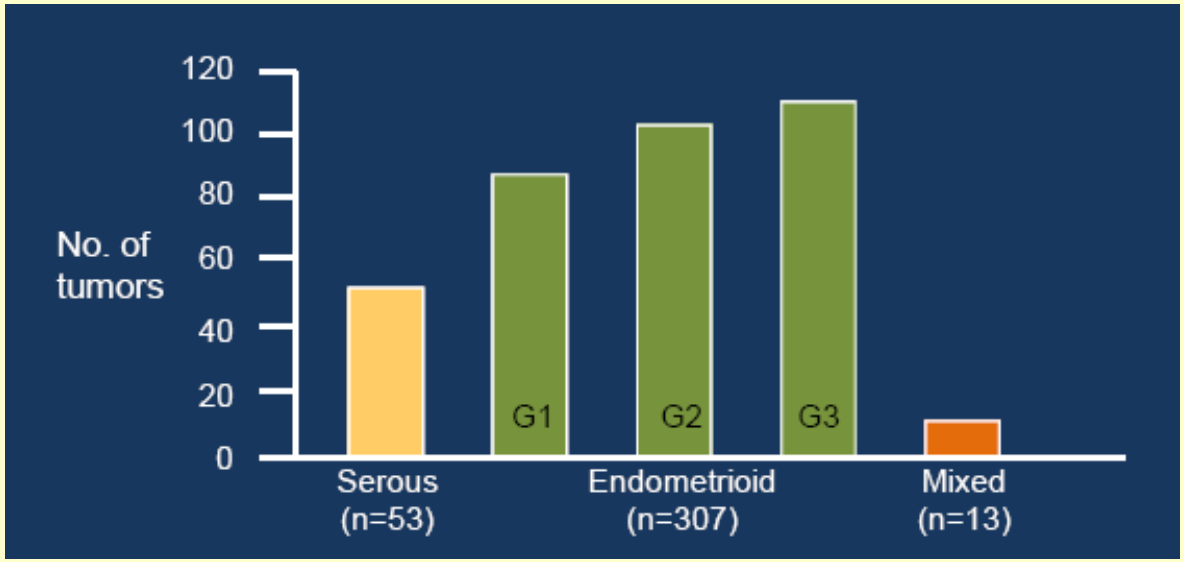
ARTICLE

OPEN

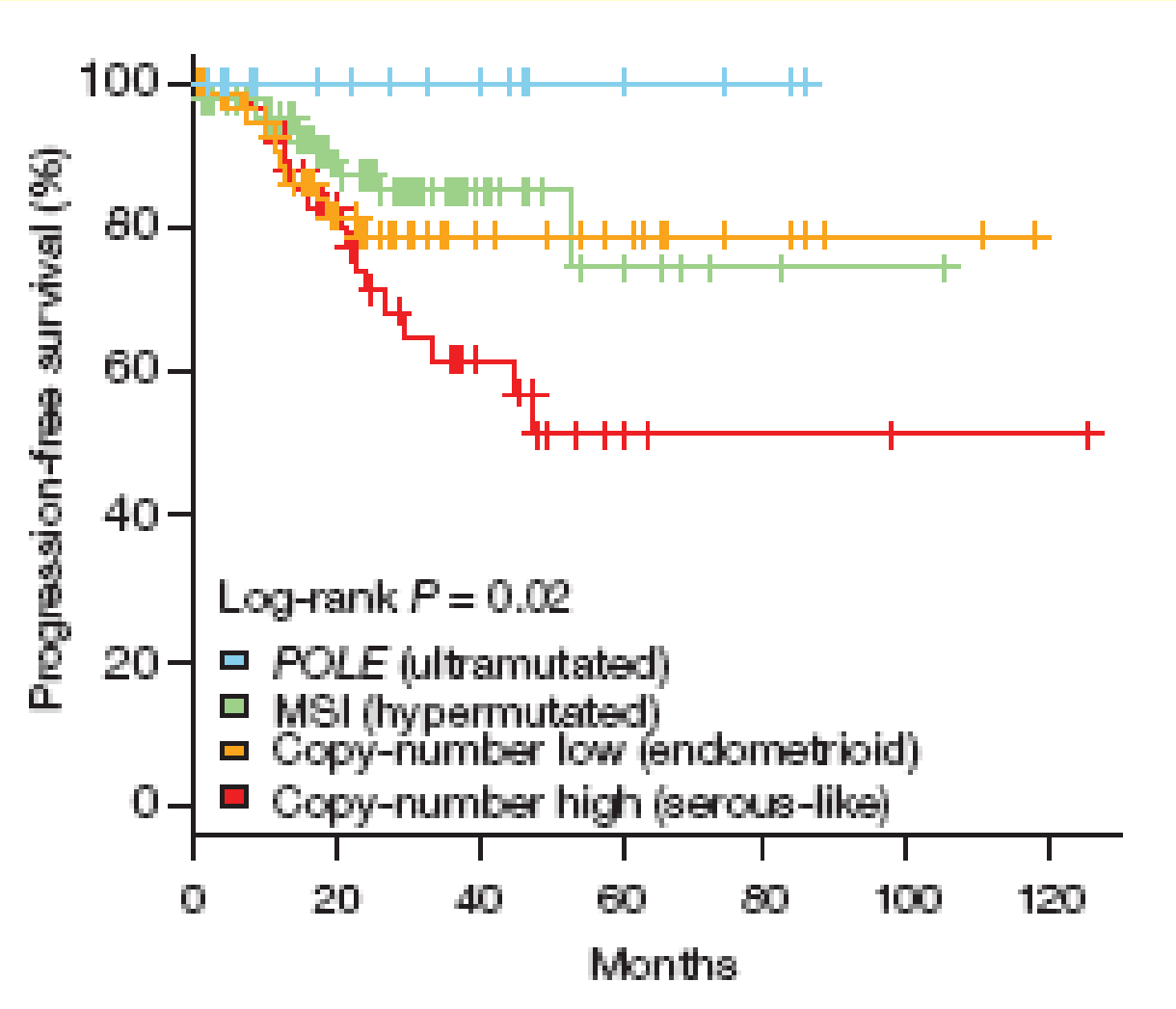
doi:10.1038/nature12113

Integrated genomic characterization of endometrial carcinoma

The Cancer Genome Atlas Research Network*



Endometrial carcinoma
TCGA, 2013



POLE exonuclease domain mutation predicts long progression-free survival in grade 3 endometrioid carcinoma of the endometrium

Bo Meng [a], Lien N. Hoang [b], John B. McIntyre [c], Máire A. Duggan [d], Gregg S. Nelson [e], Cheng-Han Lee [a,*,1], Martin Köbel [d,1]

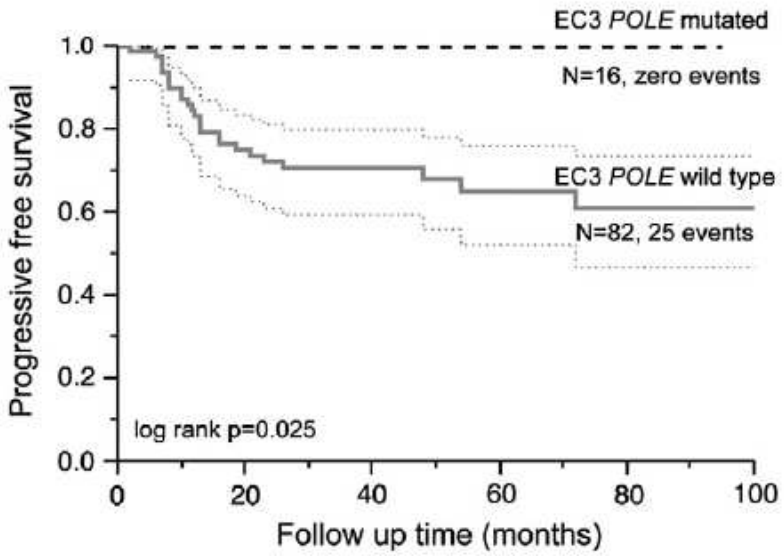


Fig. 1. Progression-free survival analysis in grade 3 endometrial endometrioid-type carcinoma stratified based on *POLE* exonuclease domain mutation status in combined HGEC and TCGA [5] cohorts. EC3, grade 3 endometrioid carcinoma. Dotted lines, 95% confidence intervals.

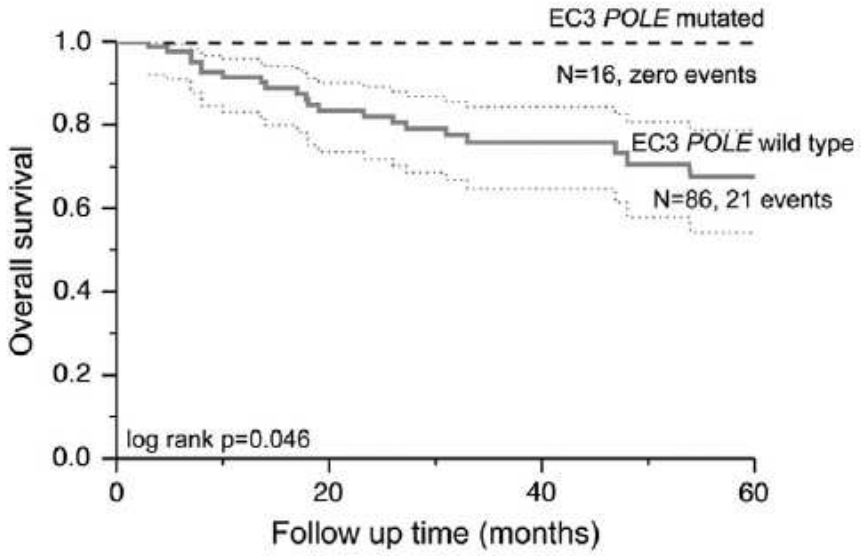
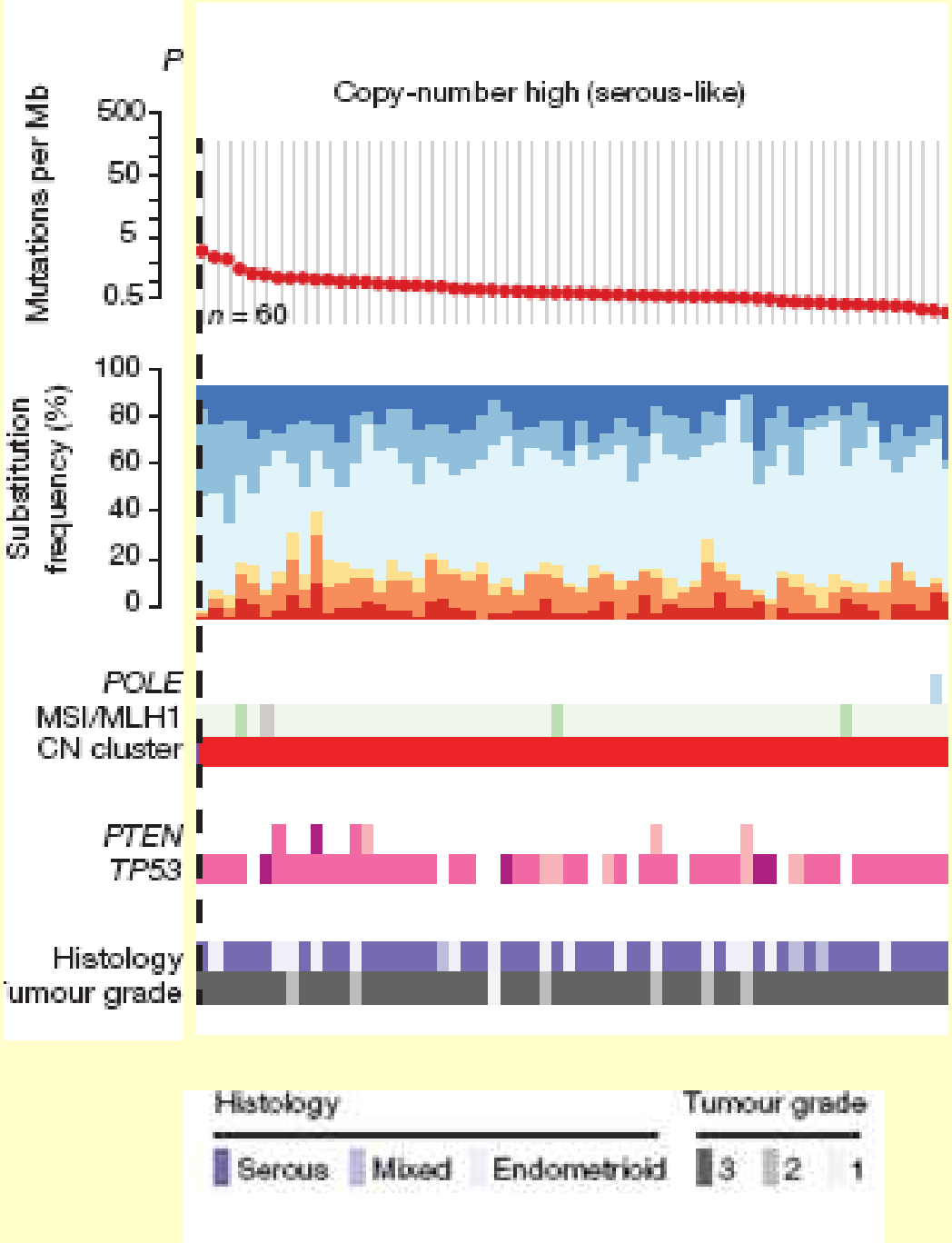


Fig. 3. Overall survival analysis in grade 3 endometrial endometrioid carcinoma stratified based on *POLE* exonuclease domain mutation status in combined HGEC and TCGA [5] cohorts. EC3, grade 3 endometrioid carcinoma. Dotted lines, 95% confidence intervals.

Group 4, Serous-like tumors

Serous (94%), mixed ca (62%), endometrioid ca (12%, usually grade 3) with p53 mutations and recurrent amplifications (MYC, ERBB2, CCNE1, FGFR3, SOX17)



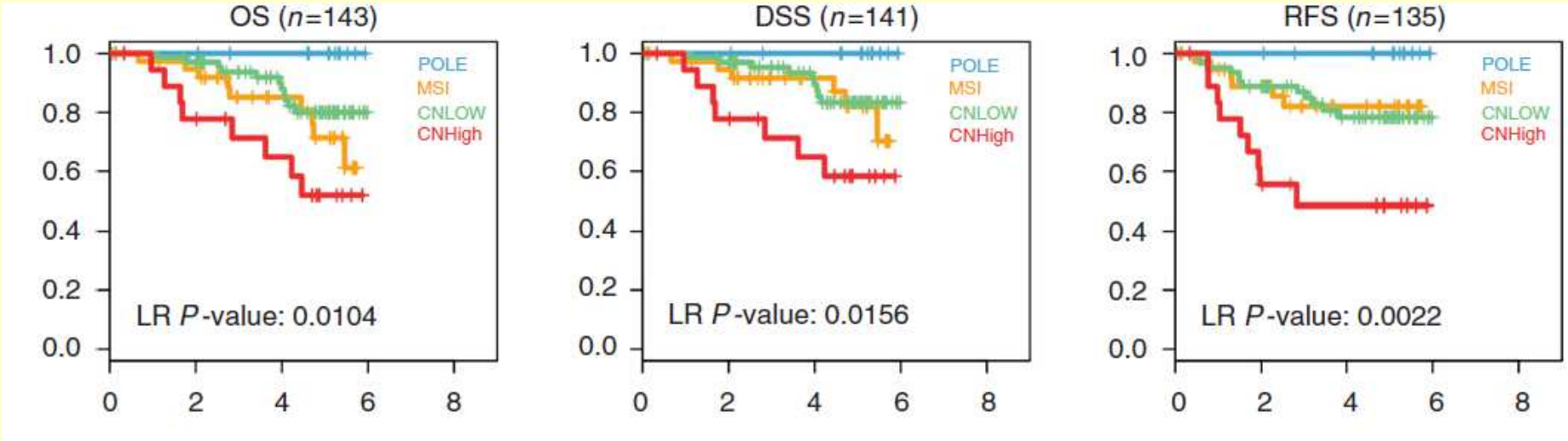
Bringing TCGA subtyping into pathology in high-grade endometrial carcinomas

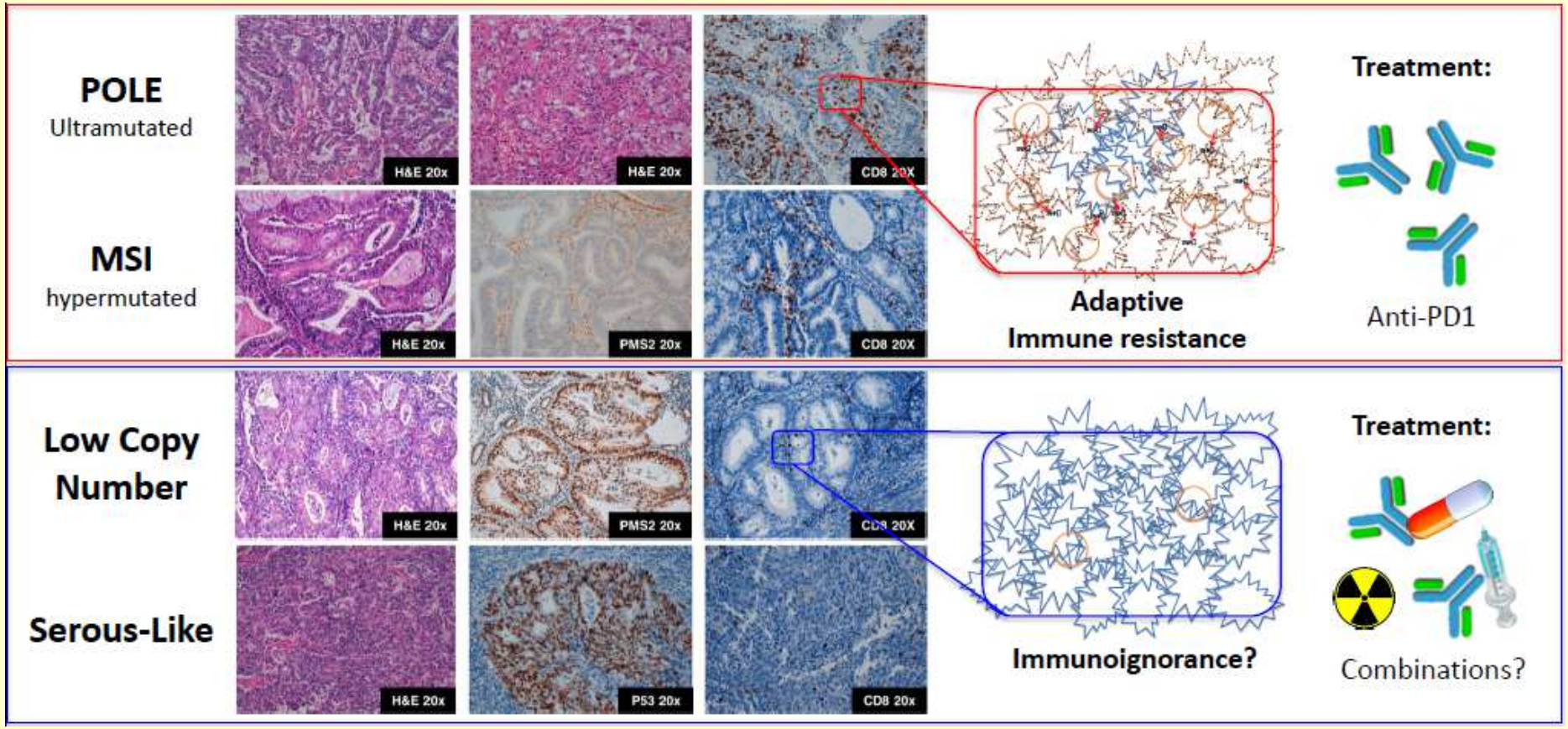
POLE mutation (hypermutated)	**POLE mutated EC**
POLE wild-type, p53 abnormal expression:	**Serous-like EC**
POLE wild-type, p53 wild-type pattern, abnormal mismatch repair:	**EEC with microsatellite instability**
POLE wild-type, p53 wild-type pattern, normal mismatch repair	**EEC with low copy number alterations**

A clinically applicable molecular-based classification for endometrial cancers

A Talhouk[1], M K McConechy[1], S Leung[2], H H Li-Chang[1,3], J S Kwon[4], N Melnyk[1], W Yang[1], J Senz[1], N Boyd[1], A N Karnezis[1], D G Huntsman[1], C B Gilks[1] and J N McAlpine[*,4]

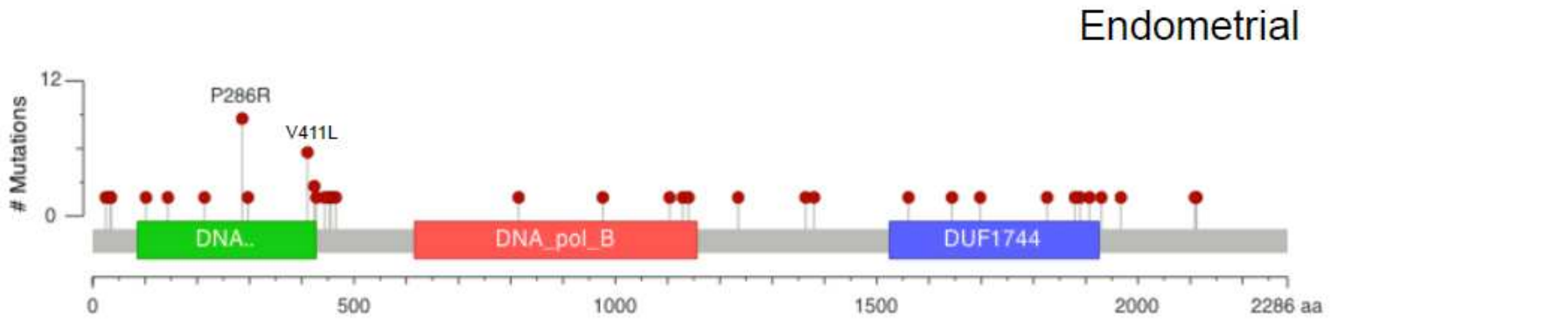
British Journal of Cancer (2015) 113, 299–310




POLE
Ultramutated
MSI
hypermutated
H&E 20x
H&E 20x
CD8 20X
H&E 20x
PMS2 20x
CD8 20X
Adaptive
Immune resistance
Treatment:
Anti-PD1
Low Copy
Number
Serous-Like
H&E 20x
PMS2 20x
H&E 20x
P53 20x
CD8 20x
Immunoignorance?
Treatment:
Combinations?

TCGA-based surrogate limitations

1-POLE mutation analysis is not available in all laboratories. Not all POLE mutations are associated with ultramutated status and good prognosis.



Eve Shinbrot, HGSC; cBIO Portal

The Cancer Genome Atlas

Interpreting POLE mutations

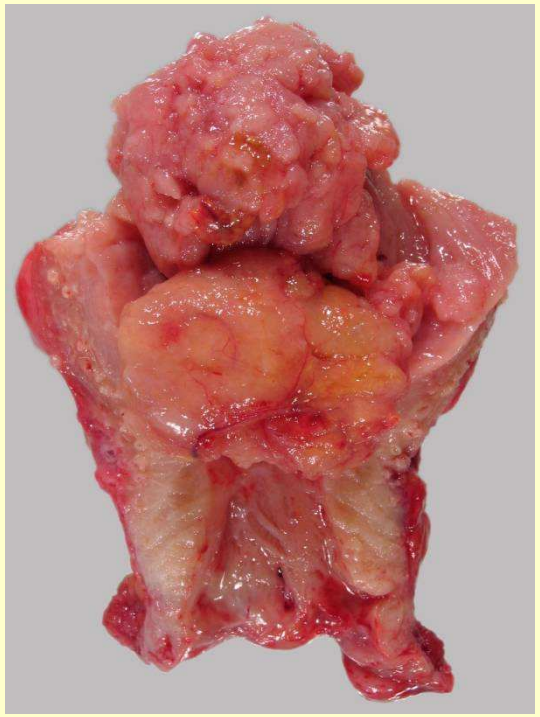
- **Functional mutations occur in the exonuclease domain, but not all mutations in the exonuclease domain are functional.**

- **Very unfrequently, mutations outside the exonuclease domain are functional.**

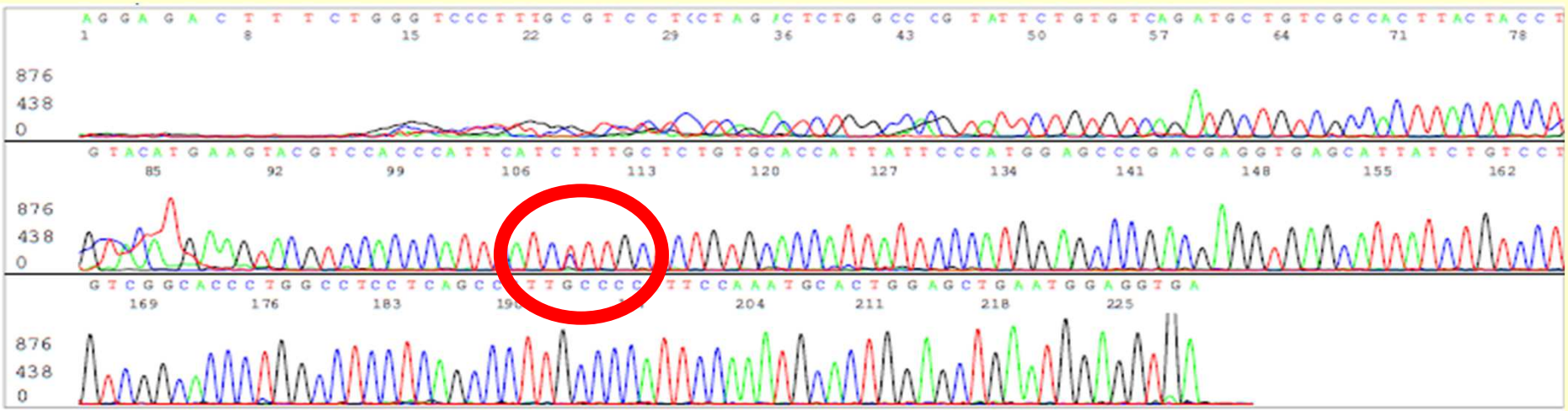
- **Functional mutations are: P286R, V411L, S297F, S459F, A456P, F367S, L424I, M295R, P436R, M444K, D368Y, (all of them in exons 9, 11, 13, 14)**

Leon A,

Non functional POLE mutation in the exonuclease domain



POLE , F479L, exon 14



Clinical outcomes of patients with *POLE* mutated endometrioid endometrial cancer

Marina Stasenko [a], Irina Tunnage [a], Charles W. Ashley [b], Maria M. Rubinstein [c], Alicia J. Latham [c, d], Arnaud Da Cruz Paula [b], Jennifer J. Mueller [a, d], Mario M. Leitao Jr. [a, d], Claire F. Friedman [c, d], Vicky Makker [c, d], Robert A. Soslow [b, d], Deborah F. DeLair [e], David M. Hyman [c, d], Dimitriy Zamarin [c, d], Kaled M. Alektiar [d, f], Carol A. Aghajanian [c, d], Nadeem R. Abu-Rustum [a, d], Britta Weigelt [b, d], Karen A. Cadoo [c, d, *]

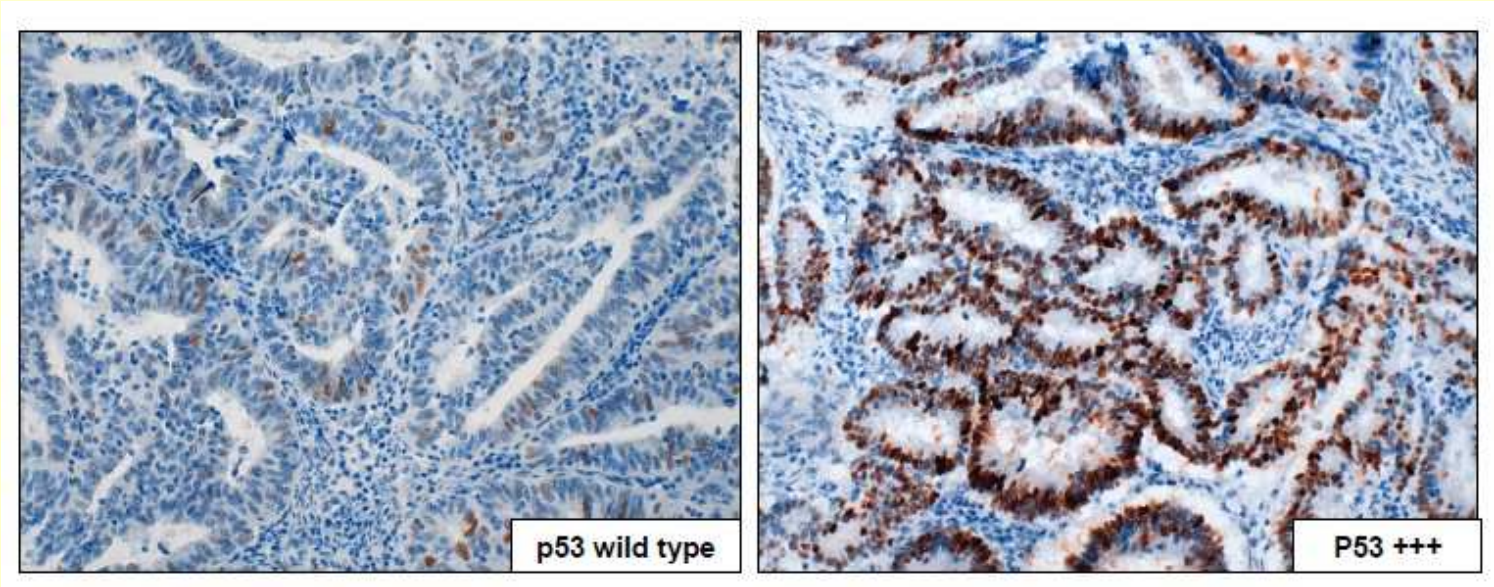
- In this prospective cohort, 5% of endometrioid endometrial carcinoma have *POLE* EDM.
- 17% of *POLE*-mutant cases developed recurrences.
- Recurrences were observed in uterine-confined G3 disease after adjuvant RT.
- *De novo* metastatic disease was observed.
- Further research is warranted before changes in treatment/management are considered.

Clinical characteristics of patients with recurrent EEC.

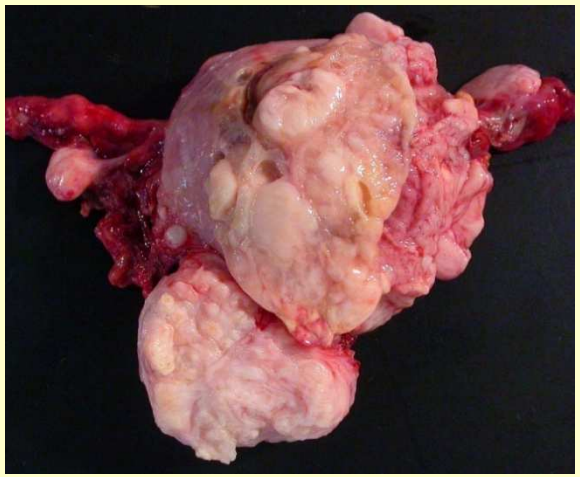
Case	Stage	Grade	Adjuvant treatment	Time to recurrence (m)	Recurrence location	Length of FU (m)	Status at last FU
PE20	IA	3	IVRT & Chemo	146	Rectum	165	NED
PE2	IB	3	IVRT	20	Brain	42	NED
PE18	IB	3	IVRT	21	Chest wall	88	NED
PE17	III	1	IVRT	35	Vagina, liver	165	AWD
PE9	IV	2	Chemo	Progressed	Breast, then brain	33	Deceased

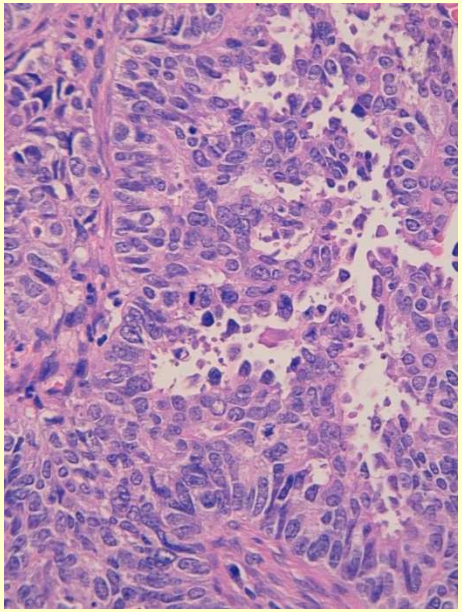
TCGA-based surrogate limitations

2- p53 immunostaining is not perfect surrogate of p53 mutations, and up to 10% of serous carcinomas are p53 wild-type, p53 is sometimes abnormal in part of a tumor (Tumor heterogeneity)



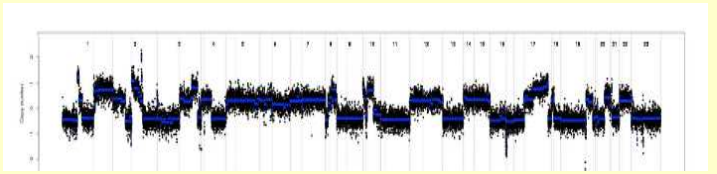
An example of p53 wild type serous carcinoma





	(MX3TS)	(MX3TC)
ATM E2411*	0.74	0.66
DIS3 R526K	0.65	0.63
EPHA5 C319W	0.69	0.64
DNMT3A C136*	0.44	0.44
ERBB3 R475W	0.41	0.38
CDK4 L120V	0.04	0.12
PIK3R1 M582fs	0.16	0.14
SOX17 P163fs	0.13	0.14
TGFBR2 S527I	0.04	

MAFs
>50%
>20-49%
>10-19%
>1-9%
0%
LOH



Microscopy: Serous carcinoma

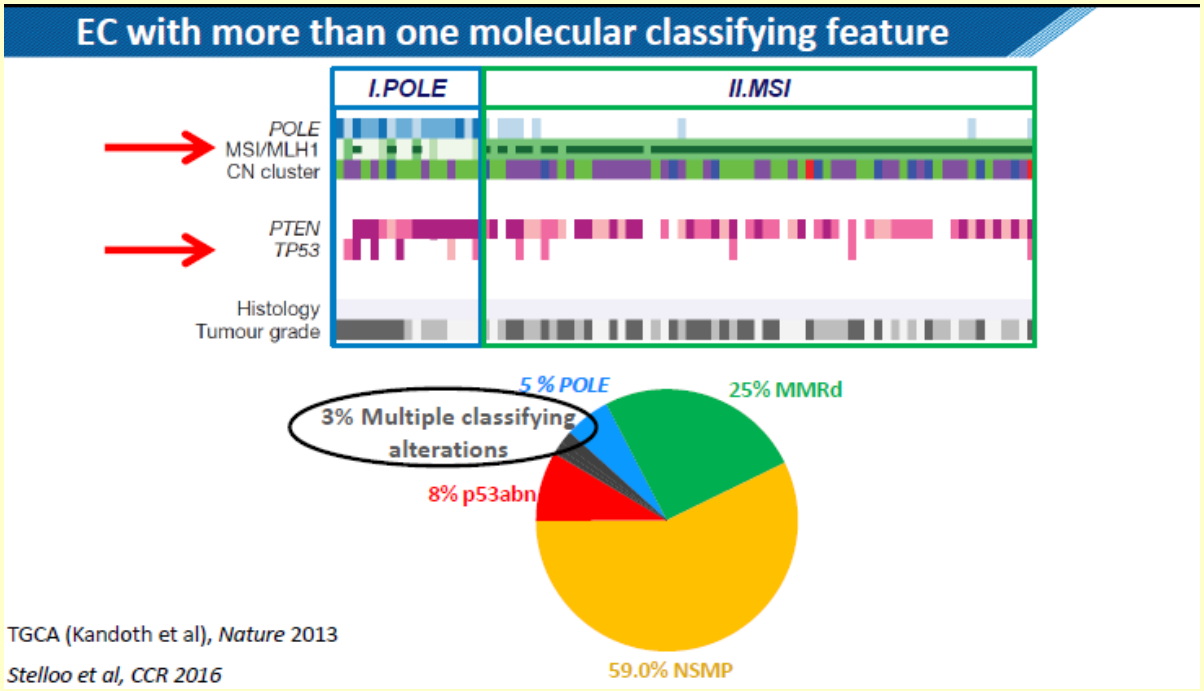
TCGA by exome sequencing: High copy number, serous-like ca

TCGA by TCGA surrogate: Low copy number EC

Conclusion: Serous ca, serous-like but with wild-type p53

TCGA-based surrogate limitations

3- Some tumors show more than one classifier (Double classifiers)



Leon A et al,

Molecular classification limitations

1-Subsets of tumors in the low-copy number group or MMRD have different prognosis.
2- Application to low-grade endometrioid carcinomas may be non cost-effective.
3- POLE mutation testing and interpretation needs standardization.
4- p53 IHC is a good, but not perfect surrogate of high copy number carcinomas.
5- Data on clear cell and undifferentiated carcinomas or carcinosarcomas are still immature.
6- Prognosis of multiple classfiers is still evolving issue.

Molecular classification strenghts

1- Good prognostic risk stratification in general, but in particular in high grade endometrioid carcinoma

2- In the high grade group, molecular classification is more important than histologic typing

Original Article

Equivalent Survival of p53 Mutated Endometrial Endometrioid Carcinoma Grade 3 and Endometrial Serous Carcinoma

Mary Anne Brett, M.D., Eshetu G. Atenafu, Ph.D., Nilanchali Singh, M.D., Prafull Ghatage, M.D., Blaise A. Clarke, M.D., Gregg S. Nelson, M.D., Ph.D., Marcus Q. Bernardini, M.D., and Martin Köbel, M.D.

There was no significant difference in survival between ESC and p53 mutated EEC3 in multivariable analysis.

Although this is so, separate classification should continue due to biological differences that will become important for future targeted therapy.

Molecular classification helps in pathologic diagnosis

- p53 immunostaining in a low-grade endometrioid carcinoma should alert on the possibility of a serous carcinoma with glandular pattern.

- A POLE mutation or MMRd in a serous carcinoma should alert on the possibility of endometrioid carcinoma

ESGO-ESTRO-ESP Guidelines Endometrial Cancer 2020

Virchows Archiv (2021) 478:153–190
https://doi.org/10.1007/s00428-020-03007-z

ORIGINAL ARTICLE

ESGO/ESTRO/ESP Guidelines for the management of patients with endometrial carcinoma

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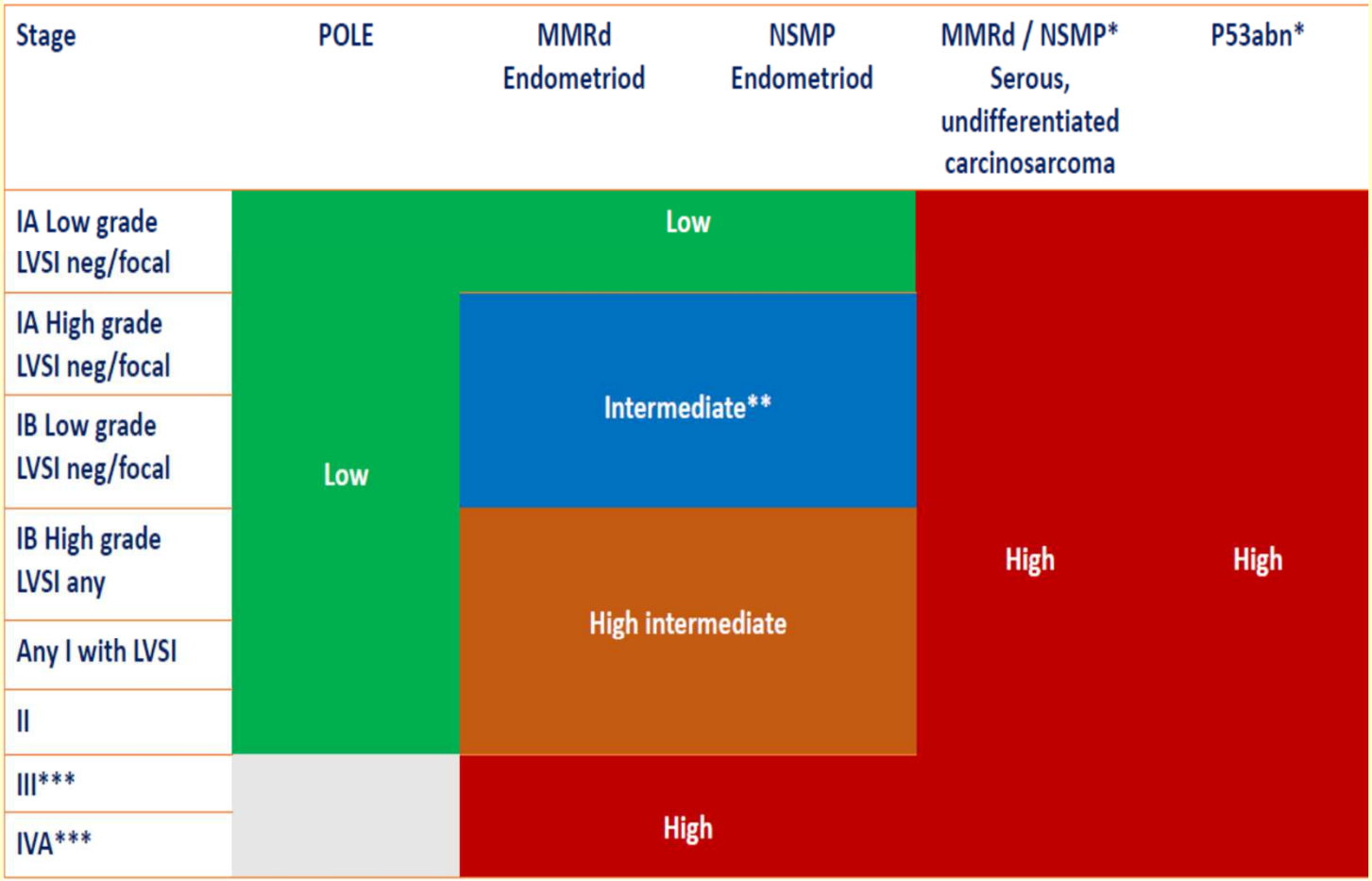
Abstract
A European consensus conference on endometrial carcinoma was held in 2014 to produce multidisciplinary evidence-based guidelines on selected questions. Given the large body of literature on the management of endometrial carcinoma published since 2014, the European Society of Gynaecological Oncology (ESGO), the European SocieTy for Radiotherapy & Oncology (ESTRO) and the European Society of Pathology (ESP) jointly decided to update these evidence-based guidelines and to cover new topics in order to improve the quality of care for women with endometrial carcinoma across Europe and worldwide. ESGO/ESTRO/ESP nominated an international multidisciplinary development group consisting of practicing clinicians and researchers who have demonstrated leadership and expertise in the care and research of endometrial carcinoma (27 experts across Europe). To ensure that the guidelines are evidence-based, the literature published since 2014, identified from a systematic search was reviewed and critically appraised. In the absence of any clear scientific evidence, judgment was based on the professional experience and consensus of the development group. The guidelines are thus based on the best available evidence and expert agreement. Prior to publication, the guidelines were reviewed by 191 independent international practitioners in cancer care delivery and patient representatives. The guidelines comprehensively cover endometrial carcinoma staging, definition of prognostic risk groups integrating molecular markers, pre- and intra-operative work-up, fertility preservation, management for early, advanced, metastatic, and recurrent disease and palliative treatment. Principles of radiotherapy and pathological evaluation are also defined.

DEFINITION OF PROGNOSTIC RISK GROUPS INTEGRATING MOLECULAR MARKERS

- Histopathological type, grade, myometrial invasion and LVSI (no/focal/substantial) should be recorded in all patients with endometrial carcinoma [V, A].

- The definition of prognostic risk groups is presented in the Figure 3 for both situations, when Molecular Classification is known or unknown.

PROGNOSTIC RISK GROUPS



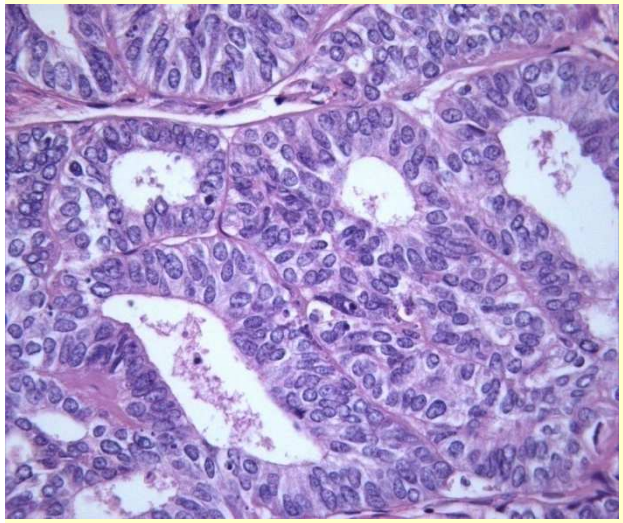
*With myometrial invasion

**Stage IA p53abn and/or non-endometrioid (serous, clear cell, undifferentiated carcinoma, carcinosarcoma, mixed) without myometrial invasio

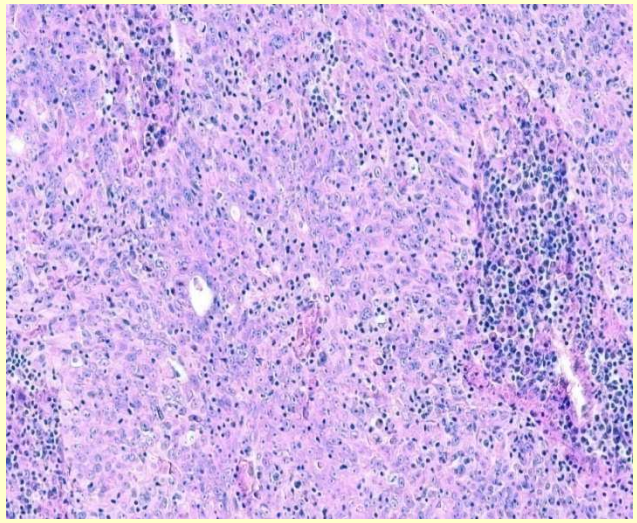
***No residual disease

Gonzalez A

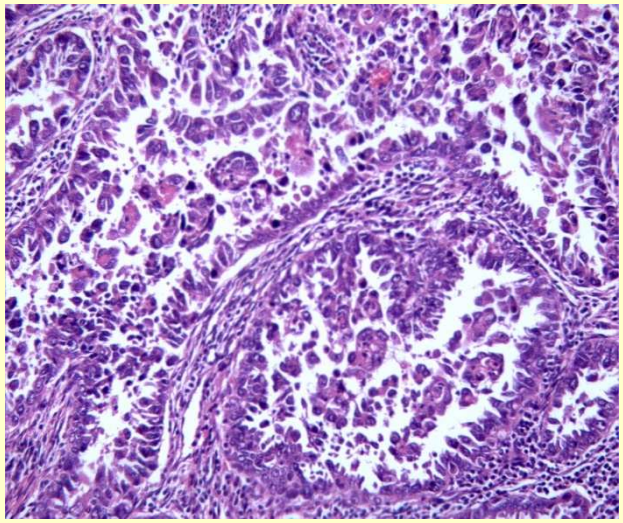
TCGA-BASED MOLECULAR CLASSIFICATION IS APPLICABLE TO ALL HISTOLOGIC SUBTYPES OF ENDOMETRIAL CARCINOMA



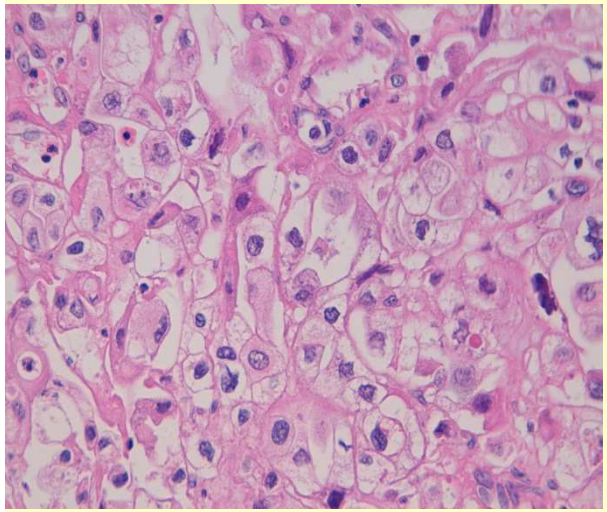
EEC 1,2



EEC 3



Serous



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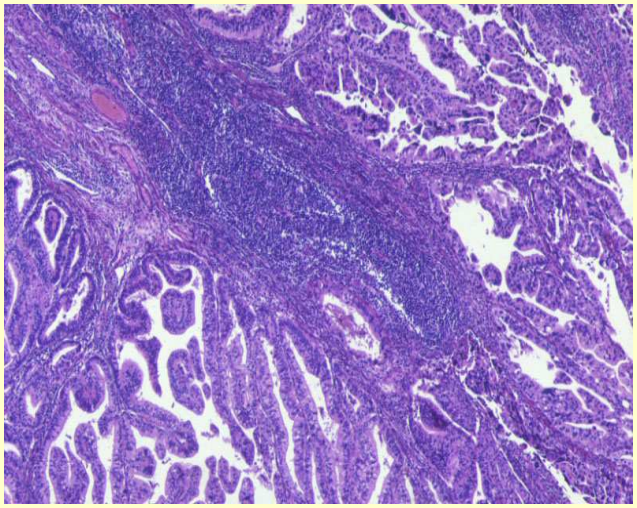

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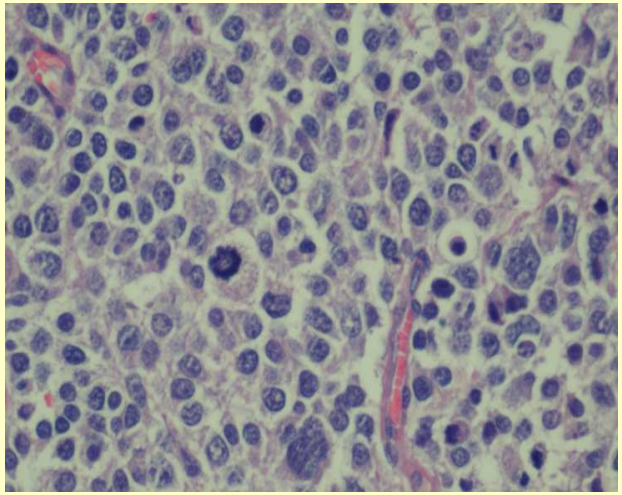
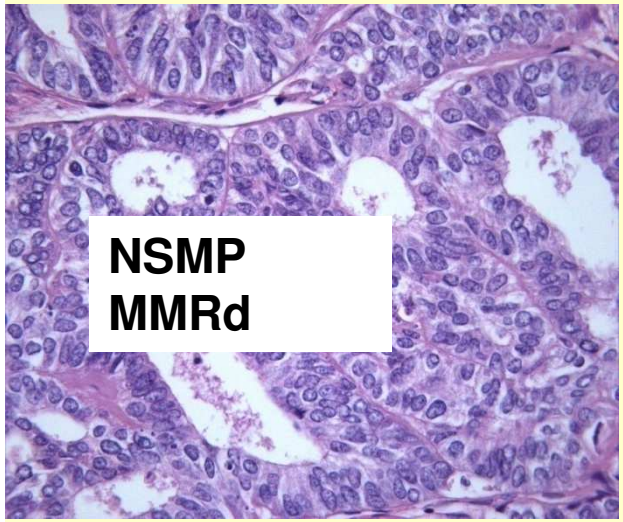


Undiff

TCGA-BASED MOLECULAR CLASSIFICATION IS APPLICABLE TO ALL HISTOLOGIC SUBTYPES OF ENDOMETRIAL CARCINOMA



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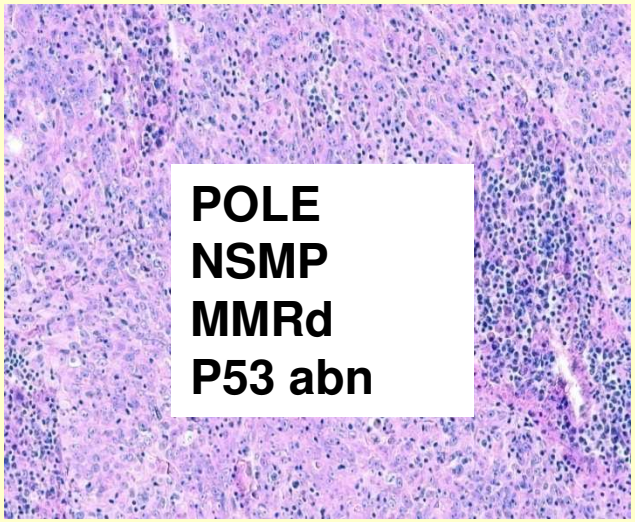

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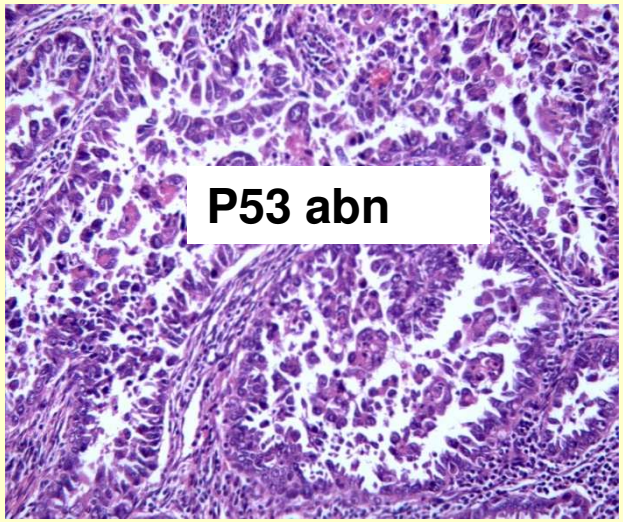

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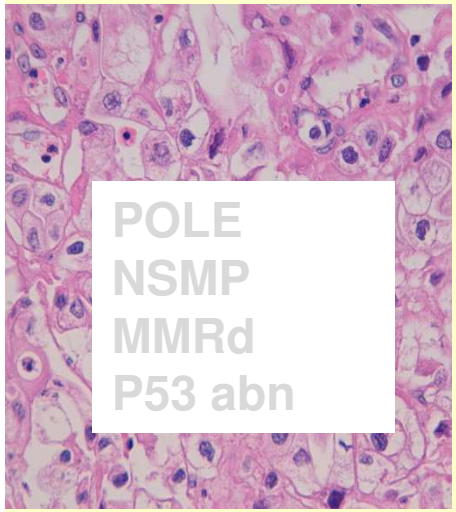

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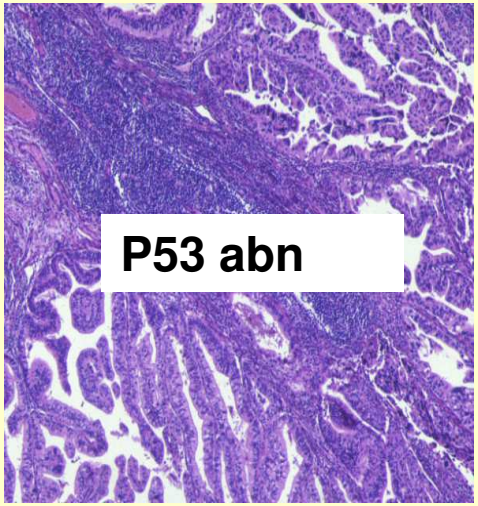

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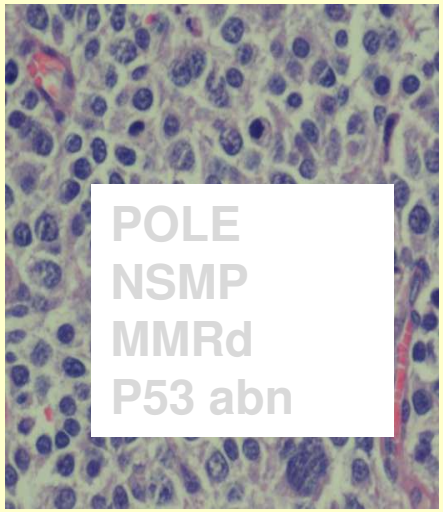

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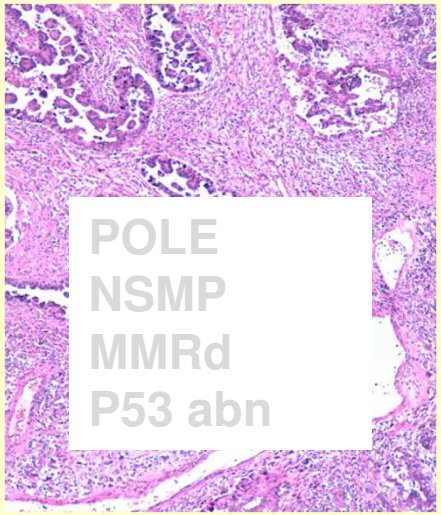
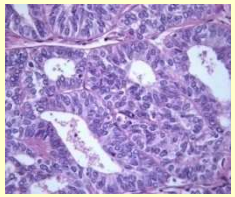


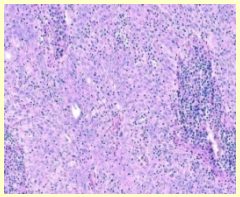
Carcinosarcoma

IS MICROSCOPIC EXAMINATION USEFUL IN THE TIMES OF MOLECULAR CLASSIFICATION OF ENDOMETRIAL CARCINOMA?

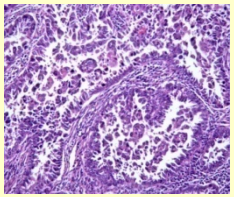
70%
EEC 1,2



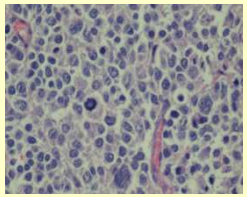
17%
EEC 3

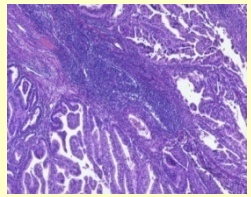


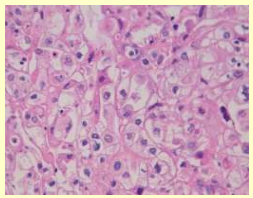
10%
SC



3%
other
Undiff
Mixed
Clear
Cell







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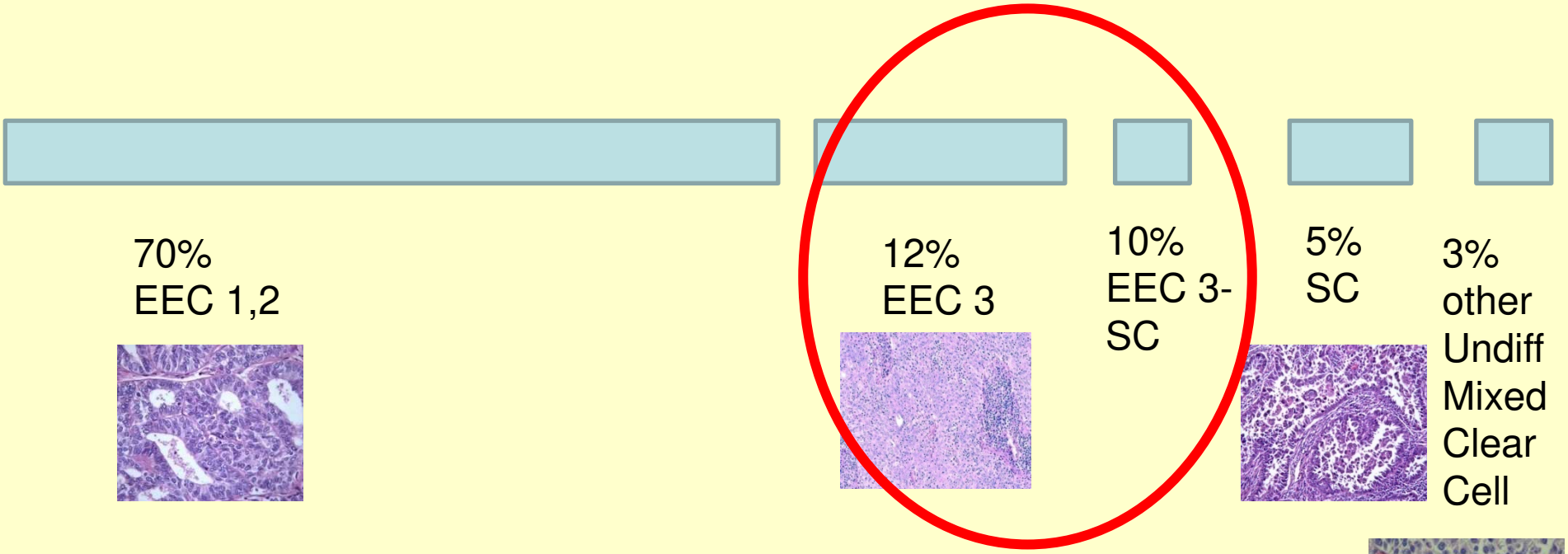
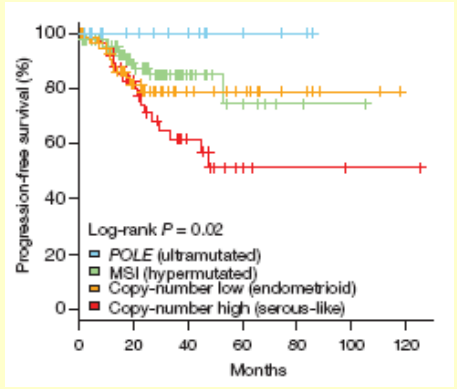
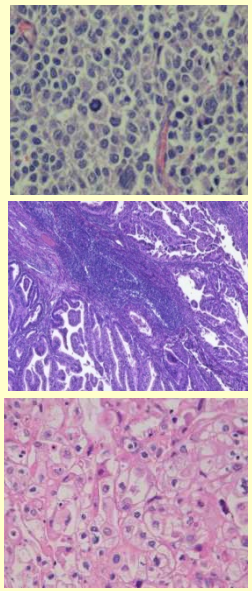


IN THIS GROUP OF TUMORS, MOLECULAR CLASSIFICATION IS MOST HELPFUL





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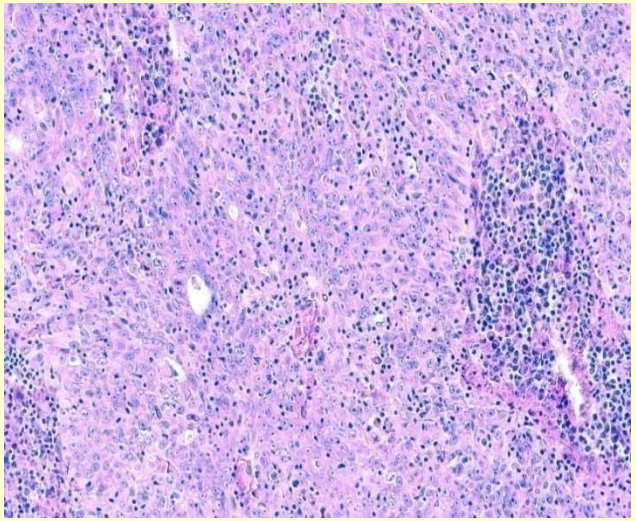
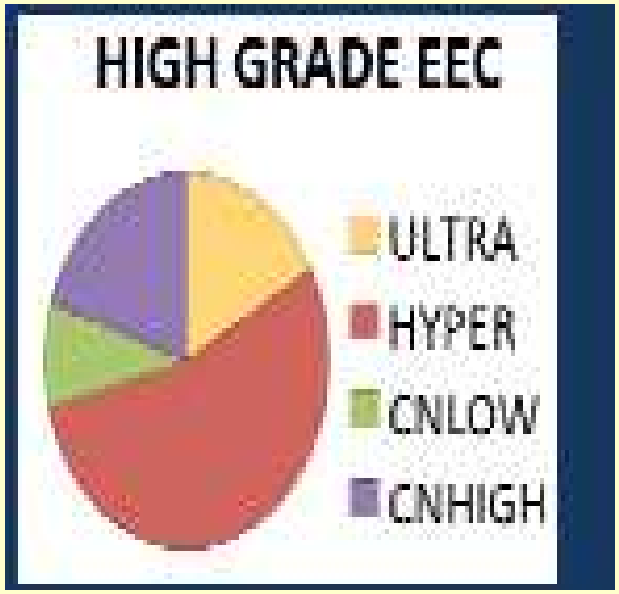
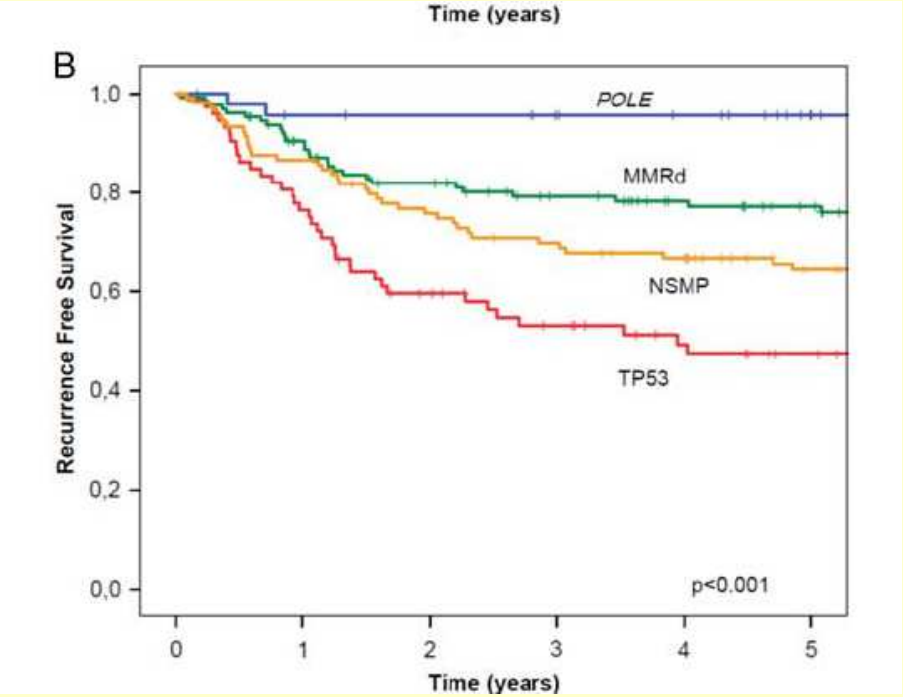


EEC 3



Molecular Classification of Grade 3 Endometrioid Endometrial Cancers Identifies Distinct Prognostic Subgroups

Tjalling Bosse, MD, Remi A. Nout, MD,* Jessica N. McAlpine, MD,† Melissa K. McConechy, MD,‡ Heidi Britton, MD,‡ Yaser R. Hussein, MD,§ Carlene Gonzalez, BA,§ Raji Ganesan, MD,‖ Jane C. Steele, MD,‖ Beth T. Harrison, MD,¶ Esther Oliva, MD,¶ August Vidal, MD,# Xavier Matias-Guiu, MD,# Nadeem R. Abu-Rustum, MD,** Douglas A. Levine, MD,** C. Blake Gilks, MD,‡ and Robert A. Soslow, MD§*



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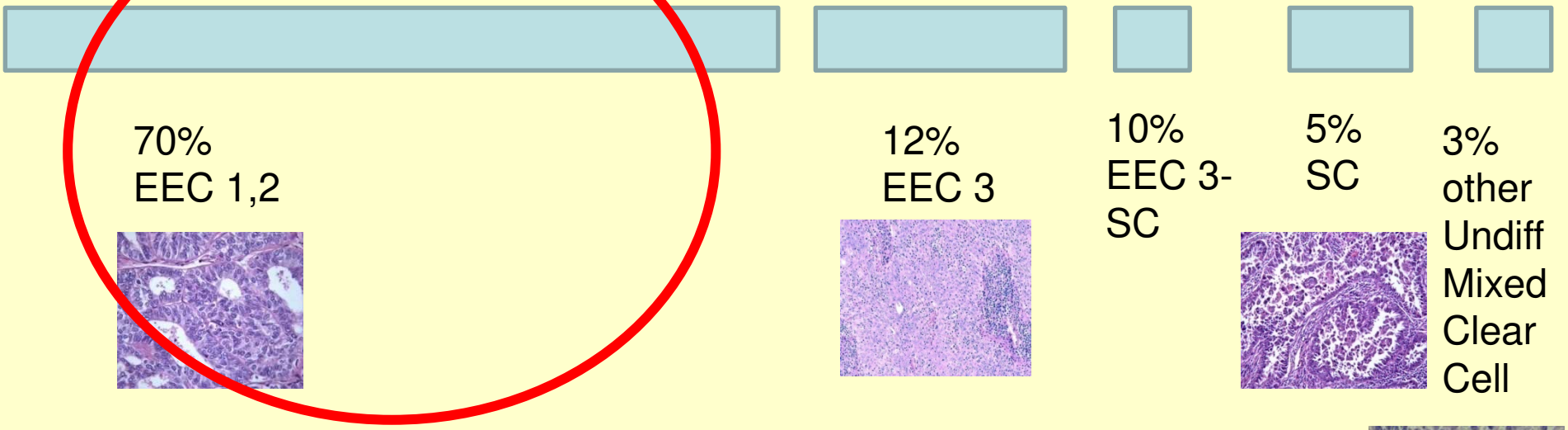
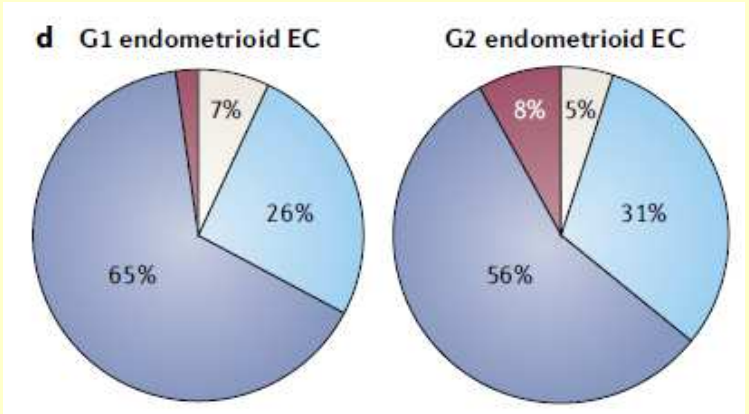


IS MOLECULAR CLASSIFICATION HELPFUL IN THE BIG GROUP OF EEC1,2 ?



Mutated *POLE* • G1/G2: 11

Mutated *TP53* • G1/G2: 6–10

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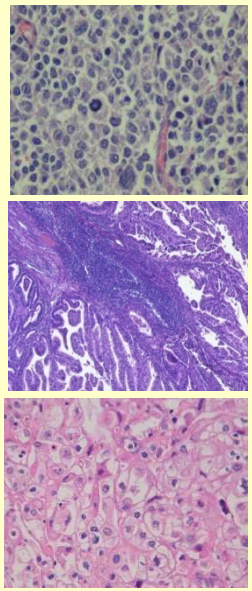

PATHOLOGY OF ENDOMETRIAL CANCER

Xavier Matias-Guiu, MD, PhD, Hospital U Arnau de Vilanova, Univ Lleida. IRBLLEIDA, Hospital U de Bellvitge, IDIBELL