

# **KOPANA 2018 Spring Seminar**

## **Neuroendocrine Tumor**

### **of GI and Pancreas**

*March 17, 2018*

*The Sutton Place Hotel, Vancouver, Canada*

*Kee-Taek JANG*

*Department of Pathology, Samsung Medical Center*

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# NET in WHO 2010

	Mitoses (10 HPF)	Ki-67 index (%)
NET, G <sub>1</sub>	<2	≤2
NET, G <sub>2</sub>	2-20	3-20
NEC, G <sub>3</sub>	>20	>20

# NET in WHO 2010

	Mitoses (10 HPF)	Ki-67 index (%)
NET, G1	<2	≤2
NET, G2	2-20	3-20
NEC, G3	>20	>20

*If Ki-67 index of NET show 2.5%, is this G1? G2? Or G1.5?*

# Ki-67 index of NET

## Calculation of the Ki67 index in pancreatic neuroendocrine tumors: a comparative analysis of four counting methodologies

Michelle D Reid<sup>1,12</sup>, Pelin Bagci<sup>2,12</sup>, Nobuyuki Ohike<sup>3</sup>, Burcu Saka<sup>4</sup>, Ipek Erbarut Seven<sup>2</sup>, Nevra Dursun<sup>5</sup>, Serdar Balci<sup>6</sup>, Hasan Gucer<sup>7</sup>, Kee-Taek Jang<sup>8</sup>, Takuma Tajiri<sup>9</sup>, Olca Basturk<sup>10</sup>, So Yeon Kong<sup>11</sup>, Michael Goodman<sup>11</sup>, Gizem Akkas<sup>1</sup> and Volkan Adsay<sup>1</sup>

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Ki67 index is now an essential part of classification of pancreatic neuroendocrine tumors. However, its adaptation into daily practice has been fraught with challenges related to counting methodology. In this study, three reviewers used four counting methodologies to calculate Ki67 index in 68 well-differentiated pancreatic neuroendocrine tumors: (1) 'eye-ball' estimation, which has been advocated as reliable and is widely used; (2) automated counting by image analyzer; (3) manual eye-counting (eye under a microscope without a grid); and (4) manual count of camera-captured/printed image. Pearson's correlation (*R*) was used to measure pair-wise correlation among three reviewers using all four methodologies. Average level of agreement was calculated using mean of *R* values. The results showed that: (1) 'eye-balling' was least expensive and fastest (average time <1 min) but had poor reliability and reproducibility. (2) Automated count was the most expensive and least practical with major impact on turnaround time (limited by machine and personnel accessibility), and, more importantly, had inaccuracies in overcounting unwanted material. (3) Manual eye count had no additional cost, averaged 6 min, but proved impractical and poorly reproducible. (4) Camera-captured/printed image was most reliable, had highest reproducibility, but took longer than 'eye-balling'. In conclusion, based on its comparatively low cost/benefit ratio and reproducibility, camera-captured/printed image appears to be the most practical for calculating Ki67 index. Although automated counting is generally advertised as the gold standard for index calculation, in this study it was not as accurate or cost-effective as camera-captured/printed image and was highly operator-dependent. 'Eye-balling' produces highly inaccurate and unreliable results, and is not recommended for routine use.

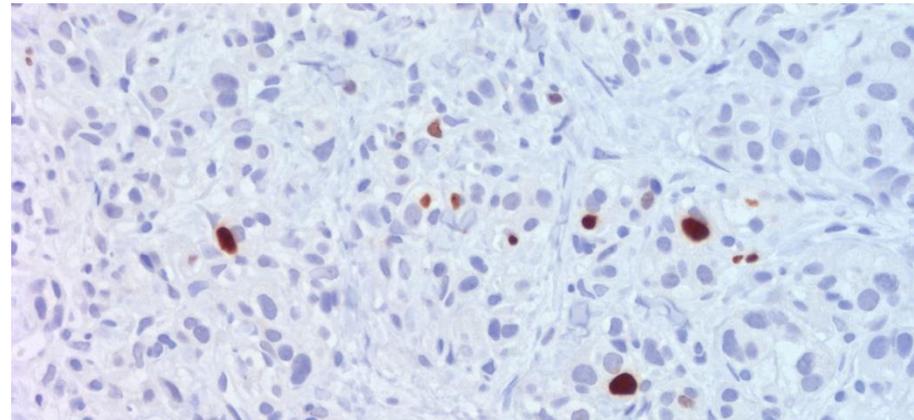
*Modern Pathology* (2015) 28, 686–694; doi:10.1038/modpathol.2014.156; published online 21 November 2014

Pancreatic neuroendocrine tumors constitute a group of neoplasms with phenotypic and ultrastructural neuroendocrine differentiation. As studies

with longer follow-up and better defined cohorts are published, it has become increasingly clear that pancreatic neuroendocrine tumors are low-grade malignancies. Stage of tumor, naturally, predicts the outcome of pancreatic neuroendocrine tumors; however, it has been difficult to predict which tumors are prone to recurrence and metastasis by pathologic examination alone.

Among a variety of potential prognostic parameters analyzed in numerous studies, proliferation index has consistently stood out as having strong prognostic value, along with mitotic count. Ki67 has

- 15% of PanNET fall within 2-3% range of Ki-67 proliferation index.



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<sup>12</sup>These are co-contributing first authors of this manuscript. Received 3 July 2014; revised 29 September 2014; accepted 30 September 2014; published online 21 November 2014

# Ki-67 index of NET

*Pancreas*. 2013 May;42(4):557-77.

## Consensus Guidelines for the Management and Treatment of Neuroendocrine Tumors

*Pamela L. Kunz, MD,\* Diane Reidy-Lagunes, MD, MS,† Lowell B. Anthony, MD,‡ Erin M. Bertino, MD,§ Kari Brendtro, BS,|| Jennifer A. Chan, MD,¶ Herbert Chen, MD,# Robert T. Jensen, MD,\*\* Michelle Kang Kim, MD, MSc,†† David S. Klimstra, MD,‡‡ Matthew H. Kulke, MD,§§ Eric H. Liu, MD,|||| David C. Metz, MD,¶¶ Alexandria T. Phan, MD,## Rebecca S. Sippel, MD,# Jonathan R. Strosberg, MD,\*\*\* and James C. Yao, MD†††*

### Pancreatic NET Pathology

**Mitotic rate or Ki67 should be obtained. When both mitotic rate and Ki67 are obtained, the higher grade is assigned. If specimen is inadequate, repeat biopsy is recommended.**

Subtype		
Small cell, non-small cell (ie, large cell)	Recommend	
Grading (proliferative rate)	Recommend	
Mitotic rate		
G1		<2 mitoses/10 HPF*
G2		2–20 mitoses/10 HPF
G3		>20 mitoses/10 HPF
Ki 67		
G1		<3%
G2		3%–20%
G3		>20%
Histology differentiation	Recommend	Poorly differentiated NECs (G3) are highly aggressive and need to be distinguished from other NETs

# Ki-67 index of NET

## The NANETS Consensus Guideline for the Diagnosis and Management of Neuroendocrine Tumors

### *Well-Differentiated Neuroendocrine Tumors of the Jejunum, Ileum, Appendix, and Cecum*

*J. Philip Boudreaux, MD,\* David S. Klimstra, MD,† Manal M. Hassan, MD, PhD,‡ Eugene A. Woltering, MD,\* Robert T. Jensen, MD,§ Stanley J. Goldsmith, MD,|| Charles Nutting, DO,¶ David L. Bushnell, MD,# Martyn E. Caplin, MD,\*\* and James C. Yao, MD‡*

**TABLE 4. Grading Systems for Neuroendocrine Tumors of the Midgut**

<b>Grade</b>	<b>Criteria</b>
Low grade (G1)	<2 Mitoses/10 high-power fields, and <u>&lt;3%</u> Ki-67 index
Intermediate grade (G2)	2–20 Mitoses/10 high-power fields, or <u>3%–20%</u> Ki-67 index
High grade (G3)	>20 Mitoses/10 high-power fields or >20% Ki-67 index

# Practical Issues in Grading of NET

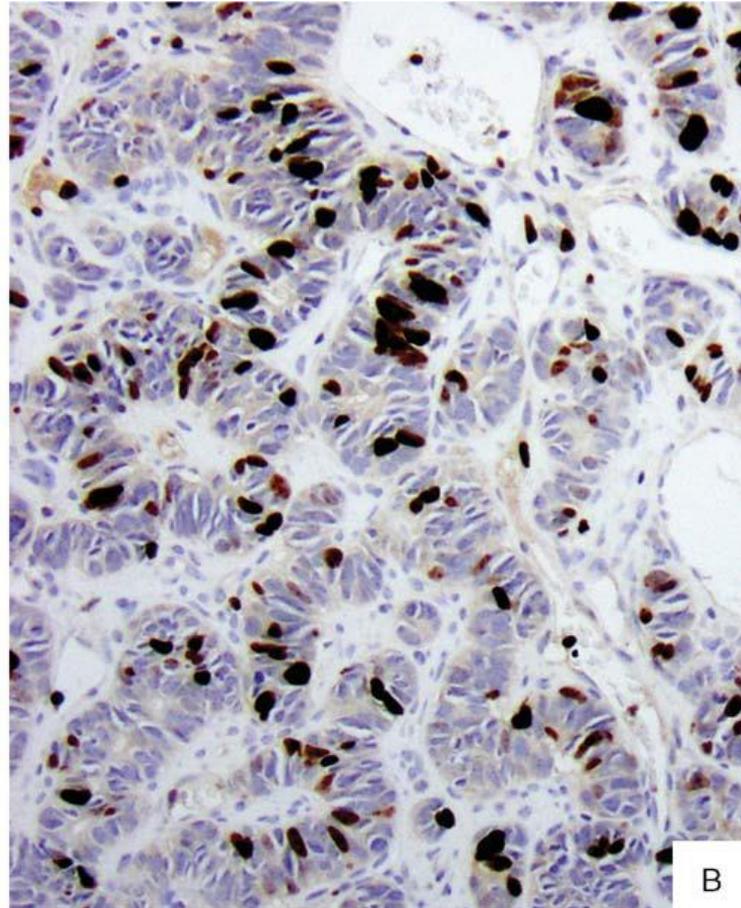
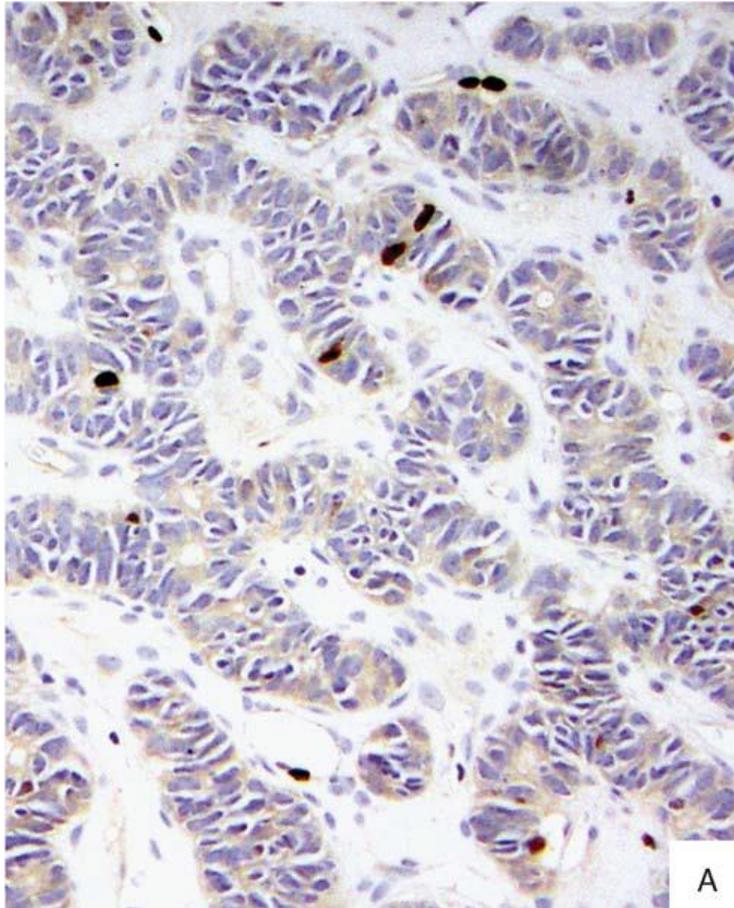
- Hot spot interpretation: heterogeneity of mitotic count.
- Discordant mitotic rate and Ki-67 proliferation index: when the mitotic rate and Ki-67 index indicate different grades, it is recommended to *assign the higher grade*
- How do you count?

# Heterogeneity of Ki-67

1.4%

vs.

21.5%



# Problems with Ki-67 index: How do you count?

1. Eyeballing
2. Counting # of cells by live microscope
3. Counting # of cells by digital image analysis
4. Manual counting # of cells on a printed photomicrography

# Eyeballing: is it reproducible?

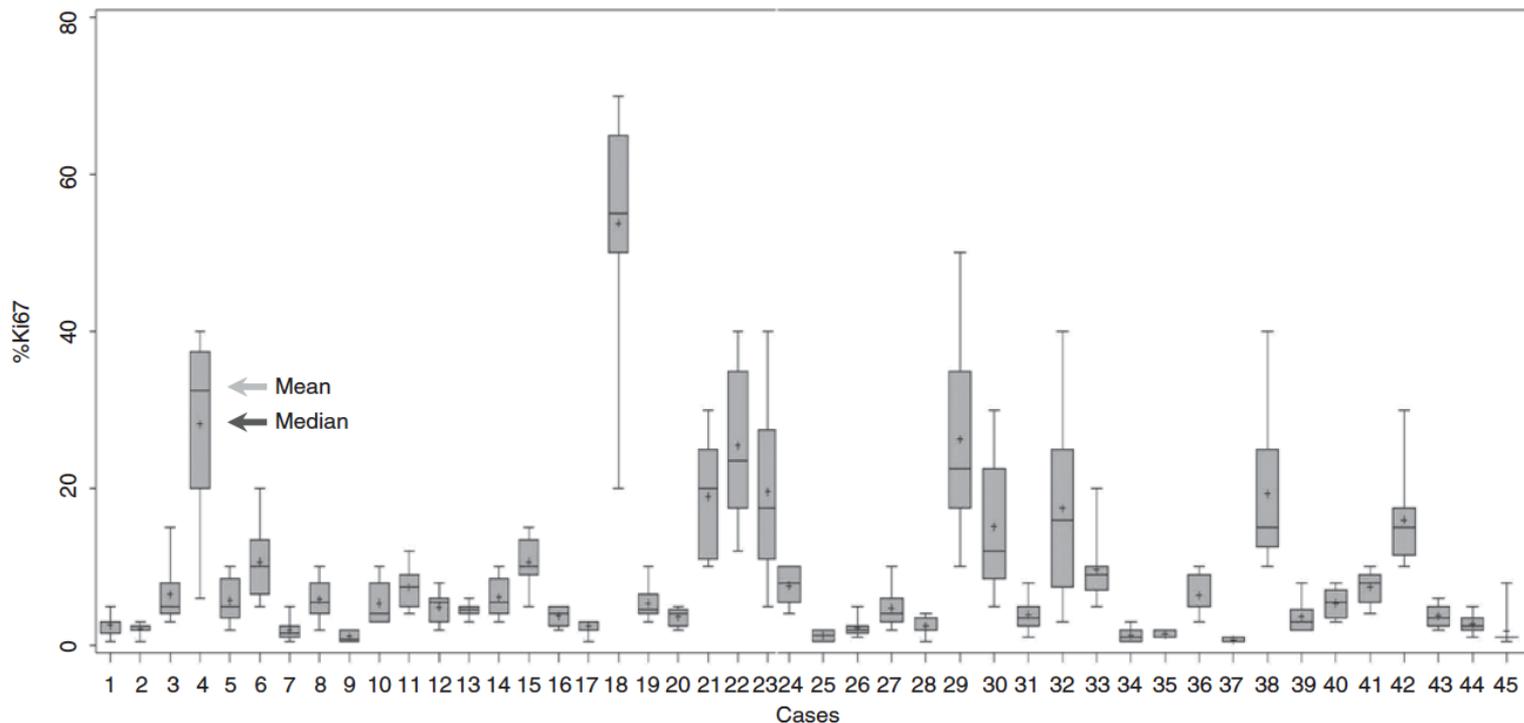


FIGURE 4. Ki67 scored by 18 observers on 45 images with EE assessment. Ki67 was quantified as percentage of positive immunoreactive tumor cells against total tumor cells in given sections and was expressed as median or mean with SE.

**Results of “eyeballing” of Ki-67 index by 18 observers in 45 cases illustrates striking inter-observer variability**

# Problems with Ki-67 index: How do you count?

## 1. Eyeballing

- About 60% of the cases have an index close to the categorical cut-off index
- Only 5% are in the extremes (<1% and > 30%)

# Problems with Ki-67 index: How do you count?

1. Eyeballing
2. Counting # of cells by live microscope



# Problems with Ki-67 index: How do you count?

1. Eyeballing
2. Counting # of cells by live microscope
3. Counting # of cells by digital image analysis

*Machine also counts  
Lymphocytes, Endothelial cells,  
hemosiderin, etc...*

# Problems with Ki-67 index: How do you count?

1. Eyeballing
2. Counting # of cells by live microscope
3. Counting # of cells by digital image analysis
4. Manual counting # of cells on a printed photomicrography

# Manual count on printed photomicrography

MODERN PATHOLOGY (2015) 28, 686–694  
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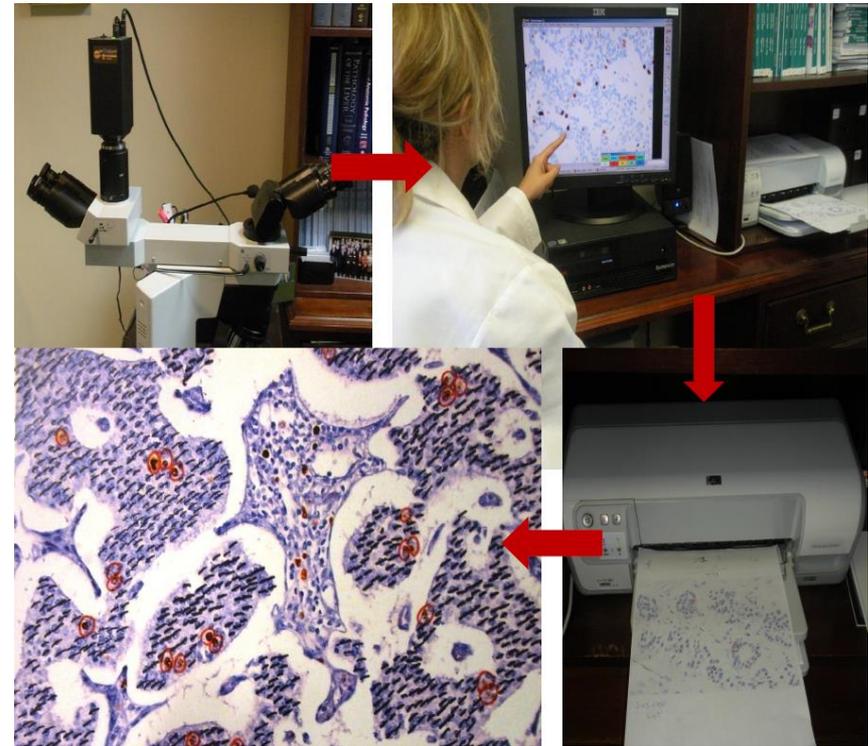
## Calculation of the Ki67 index in pancreatic neuroendocrine tumors: a comparative analysis of four counting methodologies

Michelle D Reid<sup>1,12</sup>, Pelin Bagci<sup>2,12</sup>, Nobuyuki Ohike<sup>3</sup>, Burcu Saka<sup>4</sup>, Ipek Erbarut Seven<sup>2</sup>, Nevra Dursun<sup>5</sup>, Serdar Balci<sup>6</sup>, Hasan Gucer<sup>7</sup>, Kee-Taek Jang<sup>8</sup>, Takuma Tajiri<sup>9</sup>, Olca Basturk<sup>10</sup>, So Yeon Kong<sup>11</sup>, Michael Goodman<sup>11</sup>, Gizem Akkas<sup>1</sup> and Volkan Adsay<sup>1</sup>

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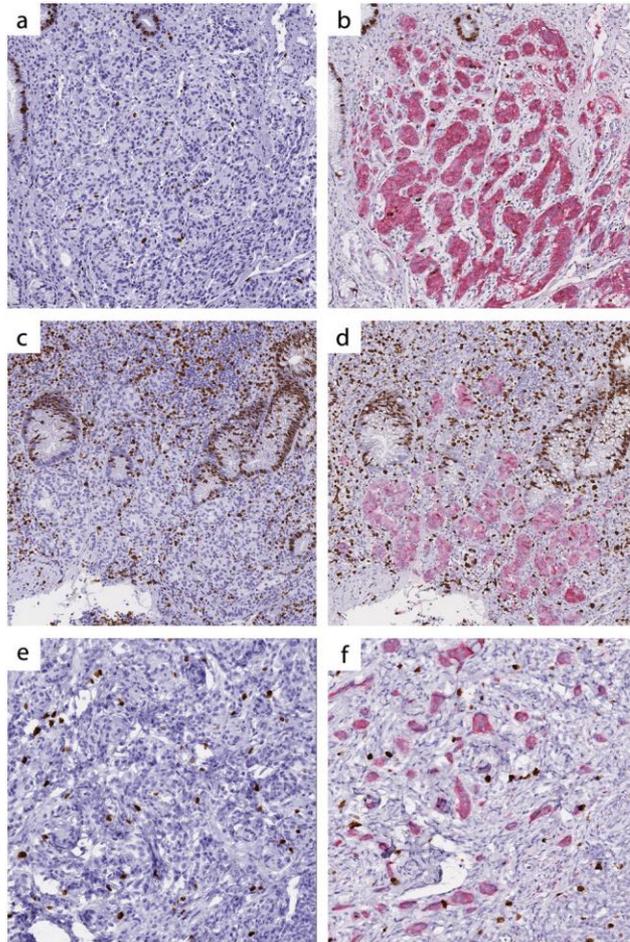
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Manual count on a printed photomicrography  
is the most applicable approach  
(practical and accurate) in daily practice

# Dual IHC of Synaptophysin & Ki-67



Staining Method	Intraclass correlation (95% confidence interval)	P-value <sup>†</sup>
Ki67-only	0.51 (0.35-0.66)	<0.001
Synatophysin-Ki67	0.79 (0.69-0.86)	<0.001

<sup>†</sup> 2-sided vs. H<sub>0</sub>:r=0

# Heterogeneity of NEC

## Are G3 ENETS neuroendocrine neoplasms heterogeneous?

Fritz-Line Vélayoudom-Céphise<sup>1</sup>, Pierre Duvallard<sup>2</sup>, Lydia Foucan<sup>3</sup>, Julien Hadoux<sup>1</sup>, Cecile N Chougnet<sup>1</sup>, Sophie Leboulleux<sup>1</sup>, David Malka<sup>4</sup>, Joël Guigay<sup>5,8</sup>, Diane Goere<sup>6</sup>, Thierry Debaere<sup>7</sup>, Caroline Caramella<sup>7</sup>, Martin Schlumberger<sup>8</sup>, Dominique Elias<sup>6</sup>, Michel Ducreux<sup>4,8</sup>, Jean-Yves Scoazec<sup>2</sup> et al.

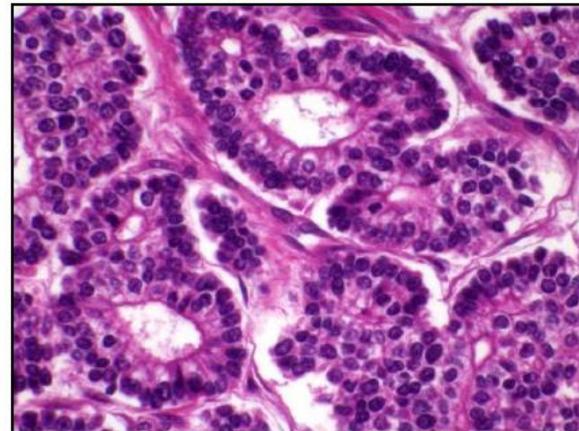
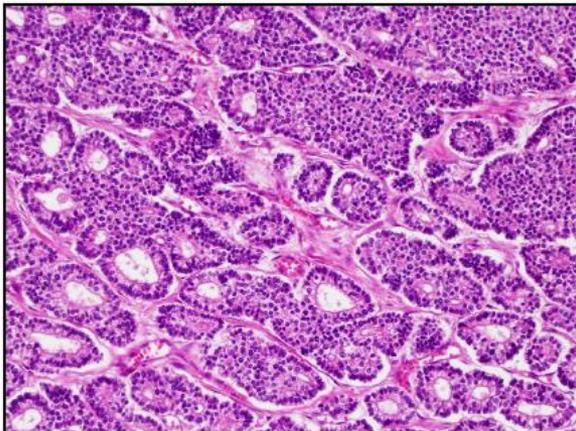
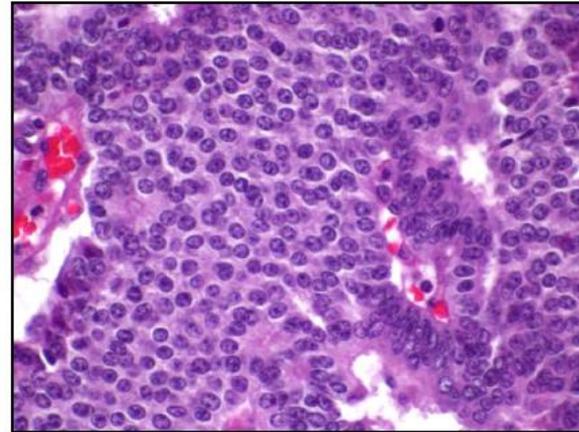
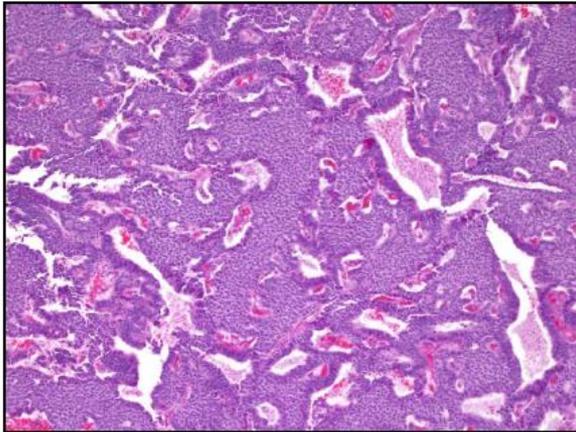
The High-grade (WHO G3) Pancreatic Neuroendocrine Tumor Category Is Morphologically and Biologically Heterogenous and Includes Both Well Differentiated and Poorly Differentiated Neoplasms

*Olea Basturk, MD,\* Zhaohai Yang, MD, PhD,† Laura H. Tang, MD, PhD,\* Ralph H. Hruban, MD,‡ Volkan Adsay, MD,§ Chad M. McCall, MD,‡ Alyssa M. Krasinskas, MD,§ Kee-Taek Jang, MD,|| Wendy L. Frankel, MD,¶ Serdar Balci, MD,§ Carlie Sigel, MD,\* and David S. Klimstra, MD\**

**A subset of well differentiated pancreatic neuroendocrine tumors (PanNETs) have an increased (>20%) Ki67 proliferation index**

# WD PanNET with high Ki-67 index

PanNETs with an increased Ki67 proliferation index

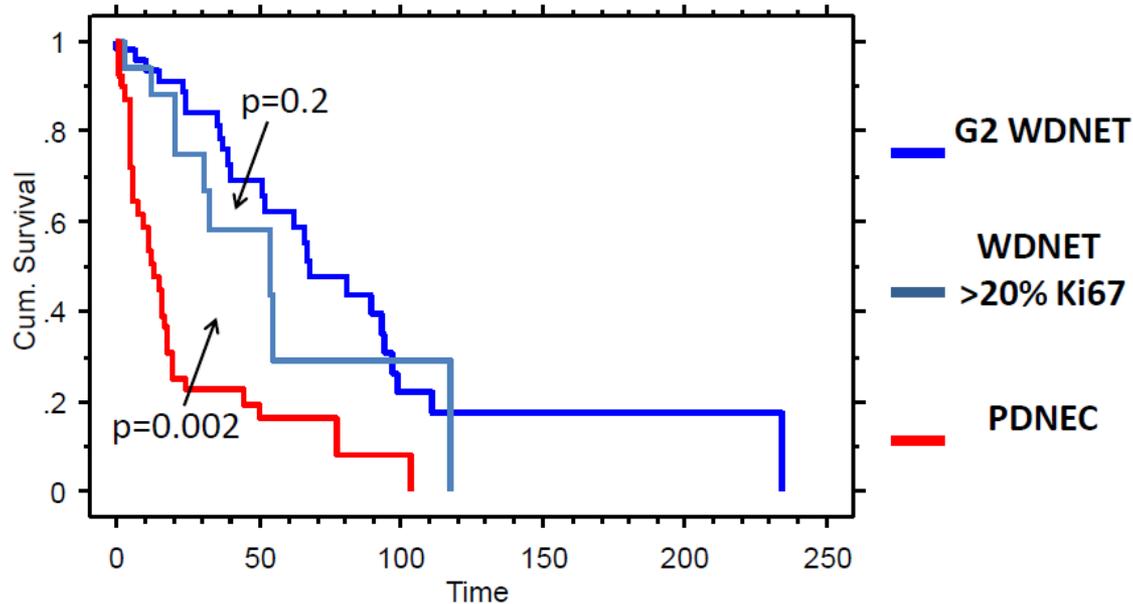


# WD PanNET with high Ki-67 index

	G2 WNETs (n=53)	WNETs >20% Ki67 (n=21)	PDNEC (n=44)	
			Small Cell	Large Cell
Average Mitotic Rate (Per 10HPF)	3.5 (2-10)	7.6 (2-20)	51 (21-92)	37 (21-83)
Average Ki67 index (%)	8.1 (3-20)	40 (24-80)	74 (50-98)	66 (40-95)

# WD PanNET with high Ki-67 index

	G2 WDNets (n=53)	WDNETs >20% Ki67 (n=21)	PDNEC (n=43)
Median survival (mos)	68 (51.8-93.8)	54 (30.5-117.9)	11 (6-18)



# WD PanNET with high Ki-67 index

## **Predictive and prognostic factors for treatment and survival in 305 patients with advanced gastrointestinal neuroendocrine carcinoma (WHO G3): The NORDIC NEC study**

H. Sorbye<sup>1\*</sup>, S. Welin<sup>2,†</sup>, S. W. Langer<sup>3,†</sup>, L. W. Vestermark<sup>4</sup>, N. Holt<sup>5</sup>, P. Osterlund<sup>6</sup>, S. Dueland<sup>7</sup>, E. Hofsl<sup>8</sup>, M. G. Guren<sup>9</sup>, K. Ohrling<sup>10</sup>, E. Birkemeyer<sup>11</sup>, E. Thiis-Evensen<sup>12</sup>, M. Biagini<sup>13</sup>, H. Gronbaek<sup>5</sup>, L. M. Soveri<sup>6</sup>, I. H. Olsen<sup>14</sup>, B. Federspiel<sup>15</sup>, J. Assmus<sup>16</sup>, E. T. Janson<sup>2,†</sup> & U. Knigge<sup>14,‡</sup>

- **Grade 3 NECs that have <55%**
  - **Much worse (P<0.001) response to chemotherapy (cisplatin) but better (P<0.001) survival**
- **Grade 3 NECs that have ≥55%**
  - **Better response to chemotherapy (cisplatin) but comes back quickly**

# **WD PanNET with high Ki-67 index**

**Suggest the current G3 (>20% Ki-67 proliferation index) contains two distinct types of tumor and can be further separated into**

- Well-differentiated PanNET with an increased proliferation index**
- Poorly differentiated neuroendocrine carcinoma**

# WD PanNET with high Ki-67 index

**Diagnosis: Well differentiated pancreatic neuroendocrine tumor with an increased (>20%) Ki67 proliferation index (See Note)**

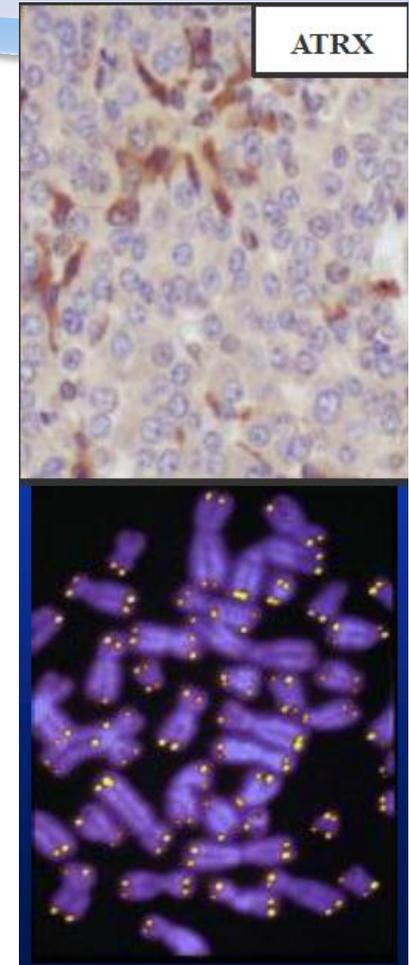
**Note: A mitotic count reveals XX per mitoses /10 high-power fields and a Ki67 stain shows a proliferative rate of XX%. This proliferation rate would place the neuroendocrine tumor into the WHO 2010 Grade 3 (i.e. neuroendocrine carcinoma) category. However, morphologically, the tumor appears to be well differentiated. The overall appearance suggests that the tumor is best interpreted as a well differentiated neuroendocrine tumor with increased proliferative rate. Preliminary studies suggest that these tumors may be associated with more aggressive clinical behavior; however, are still not as aggressive as bona fide poorly differentiated neuroendocrine carcinomas (i.e. small cell or large cell neuroendocrine carcinoma as defined in the lung).**

# Genetics of WD PanNET

- Lack alterations in genes involved in ductal neoplasia: *KRAS*, *CDKN2A*, *SMAD4* mutation, *p53*, etc...
- Alterations in chromatin remodeling genes; ***MEN1 (44%), DAXX OR ATRX (43%)***, which culminate in loss of corresponding protein expression

# Genetics of WD PanNET

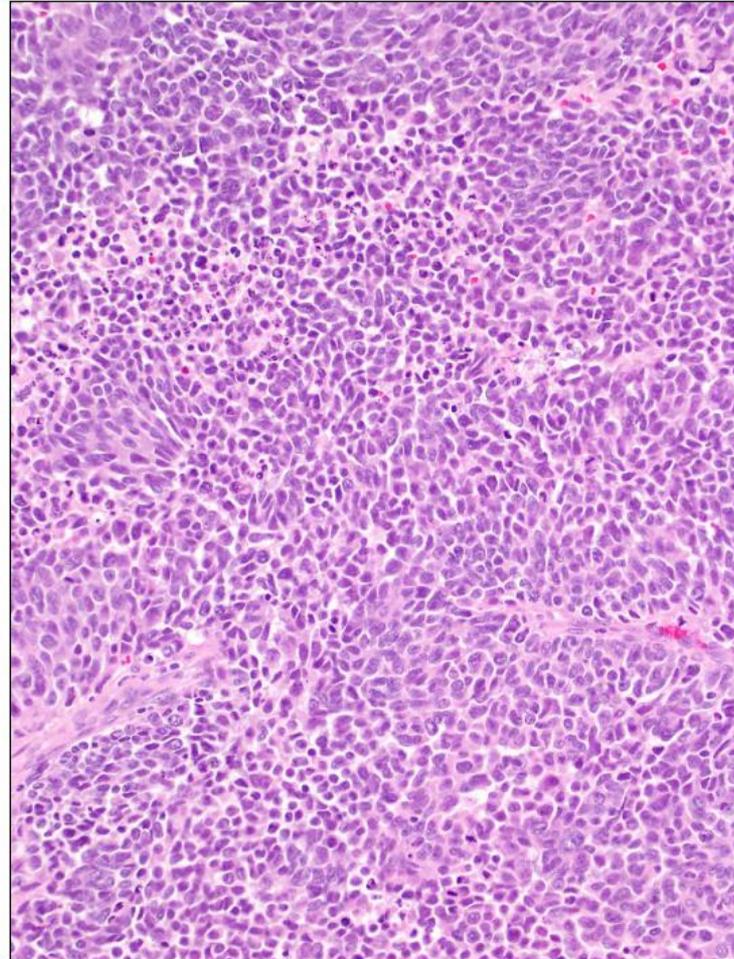
- MEN1 inactivation (44%)
  - Previously known
- DAXX/ATRX mutation (43%)
  - DAXX (death-domain-associated protein, Chr 6p)
  - ATRX: thalassemia/mental retardation syndrome X-linked
  - Together form a complex
  - Both required for H3.3 incorporation in telomeres
- mTOR pathway (15%): PTEN (7.3%), TSC2 (8.8%), PIK3CA (1.4%)



# PD PanNEC (G3)

## PanNECs

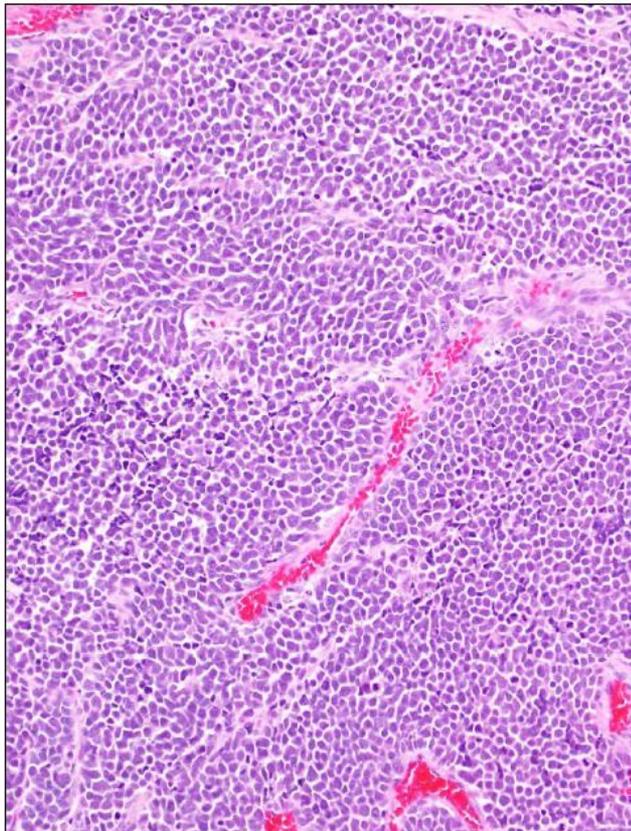
- Very rare
- **Non syndromic**
- Mean age = 59
- Usually located in the head
- Median size = 4 cm



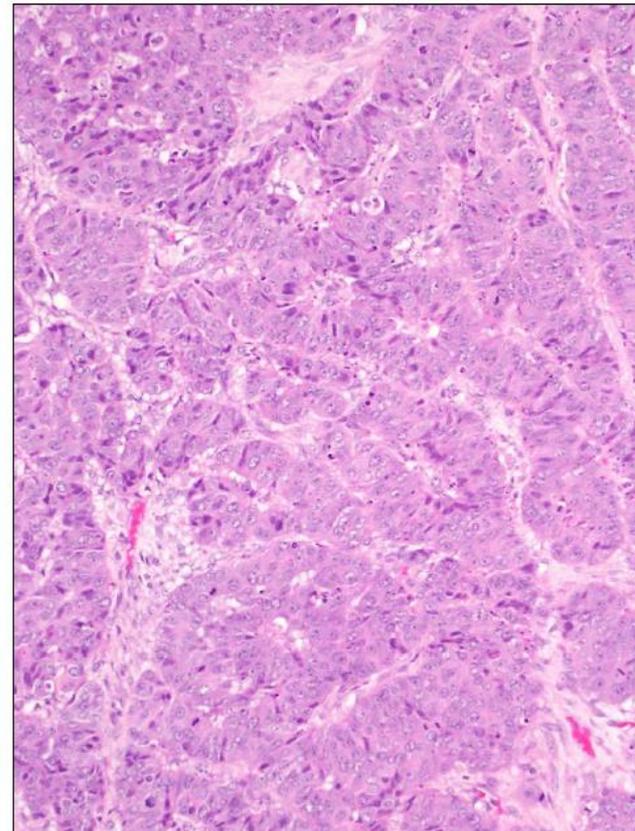
# PD PanNEC (G3)

## (Poorly Differentiated) PanNECs

Small Cell Type



Large Cell Type

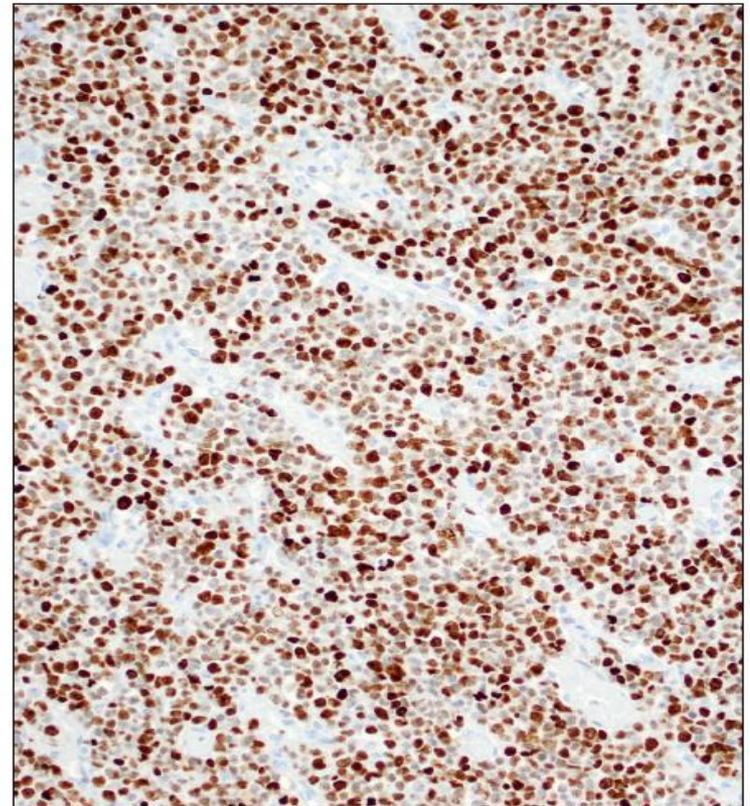


# Ki-67 index of NEC

## The average Ki67 index

**Large cell: 66% (40-95)**

**Small cell: 75% (50-98)**



# PD PanNECs

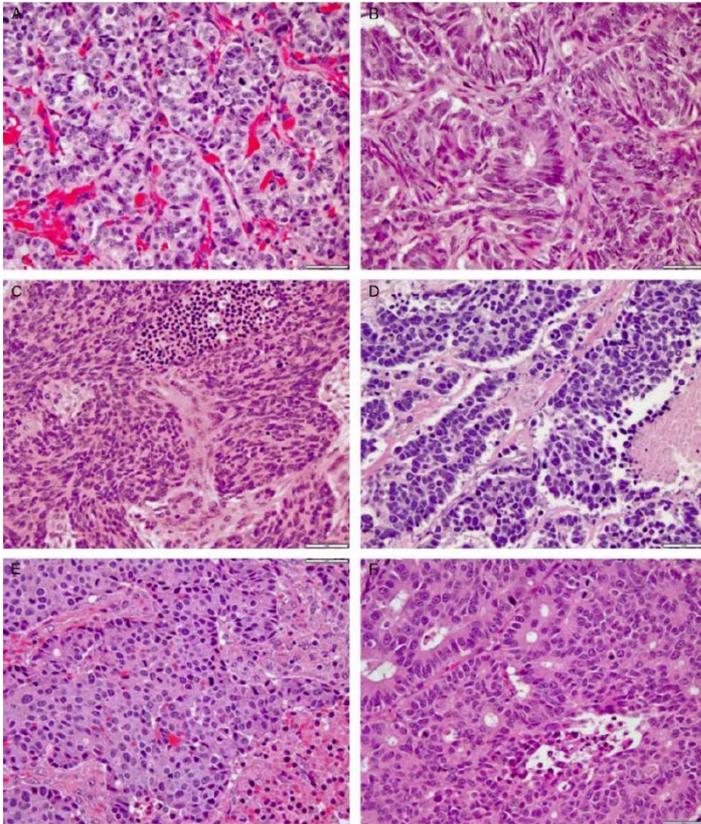
- **Share** some of genotypic alterations of conventional pancreatic ductal adenocarcinoma including ***KRAS, p16, p53, CDKN1A, and SMAD4***
- Lack alterations in *MEN1, DAXX, or ATRX*
- Common ***RB1*** gene mutations and associated loss of Rb protein expression (89% of small cell, 60% of large cell type)

# Practical approach to classification of G3 tumor

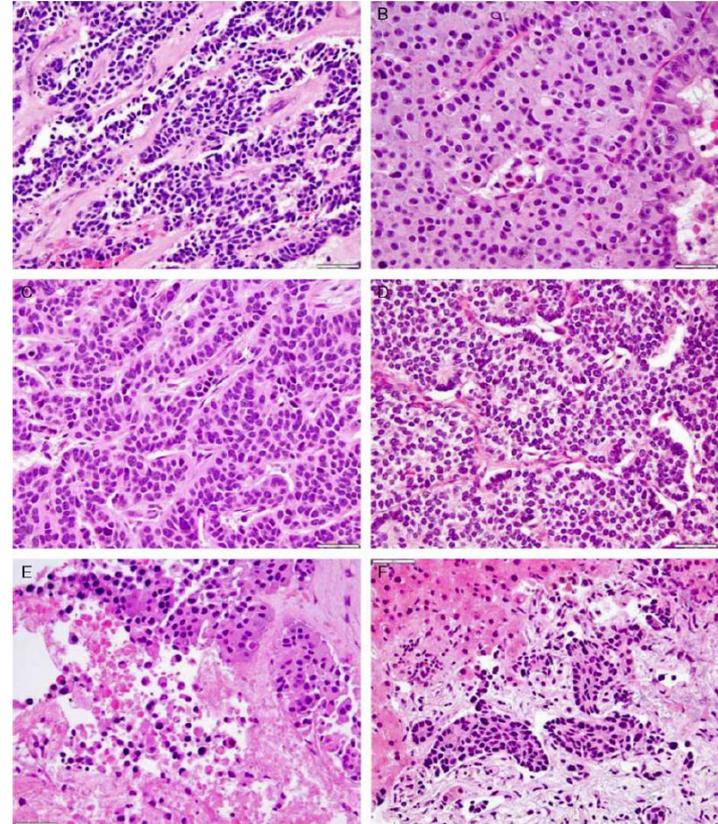
Consensus	Reviewer 1	Reviewer 2	Reviewer 3	Specimen Type
WD-NET	WD-NET	WD-NET	WD-NET	Resection
WD-NET	WD-NET	WD-NET	WD-NET	Resection
WD-NET	WD-NET	WD-NET	WD-NET	Resection
WD-NET	WD-NET	WD-NET	WD-NET	Resection
WD-NET	WD-NET	WD-NET	WD-NET	Resection
WD-NET	WD-NET	WD-NET	WD-NET	Resection
Ambiguous	WD-NET	Ambiguous	WD-NET	Biopsy
Ambiguous	WD-NET	WD-NET	Ambiguous	Resection
Ambiguous	Ambiguous	WD-NET	WD-NET	Biopsy
Ambiguous	WD-NET	WD-NET	Ambiguous	Resection
Ambiguous	WD-NET	WD-NET	Ambiguous	Resection
Ambiguous	WD-NET	WD-NET	Ambiguous	Resection
Ambiguous	WD-NET	WD-NET	Ambiguous	Biopsy
Ambiguous	WD-NET	WD-NET	PD-NET-LCC	Resection
Ambiguous	WD-NET	WD-NET	PD-NET-LCC	Biopsy
Ambiguous	Ambiguous	Ambiguous	Ambiguous	Biopsy
Ambiguous	Ambiguous	Ambiguous	PD-NEC-SCC	Resection
Ambiguous	PD-NEC-SCC	Ambiguous	PD-NEC-SCC	Resection
PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	Resection
Ambiguous	Ambiguous	Ambiguous	Ambiguous	Biopsy
PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	Resection
PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	PD-NEC-LCC	Resection
PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	Resection
PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	Resection
PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	PD-NEC-SCC	Resection
PD-NEC	PD-NEC-LCC	PD-NEC-SCC	PD-NEC-LCC	Resection
PD-NEC	PD-NEC-SCC	PD-NEC-SCC	PD-NEC-LCC	Resection
Ambiguous	WD-NET	PD-NEC-LCC	PD-NEC-LCC	Resection
Ambiguous	PD-NEC-LCC	PD-NEC-LCC	Ambiguous	Resection
Ambiguous	Ambiguous	Ambiguous	PD-NEC-SCC	Resection
Ambiguous	Ambiguous	PD-NEC-SCC	Ambiguous	Biopsy
Ambiguous	Ambiguous	PD-NEC-LCC	Ambiguous	Biopsy
Ambiguous	Ambiguous	PD-NEC-LCC	PD-NEC-LCC	Resection

# Neuroendocrine neoplasm

## Typical Morphology



## Ambiguous Case



# High-grade Neuroendocrine Neoplasm of Pancreas

**TABLE 2.** Classification of High-grade Pancreatic Neuroendocrine Neoplasms by Secondary Evidence

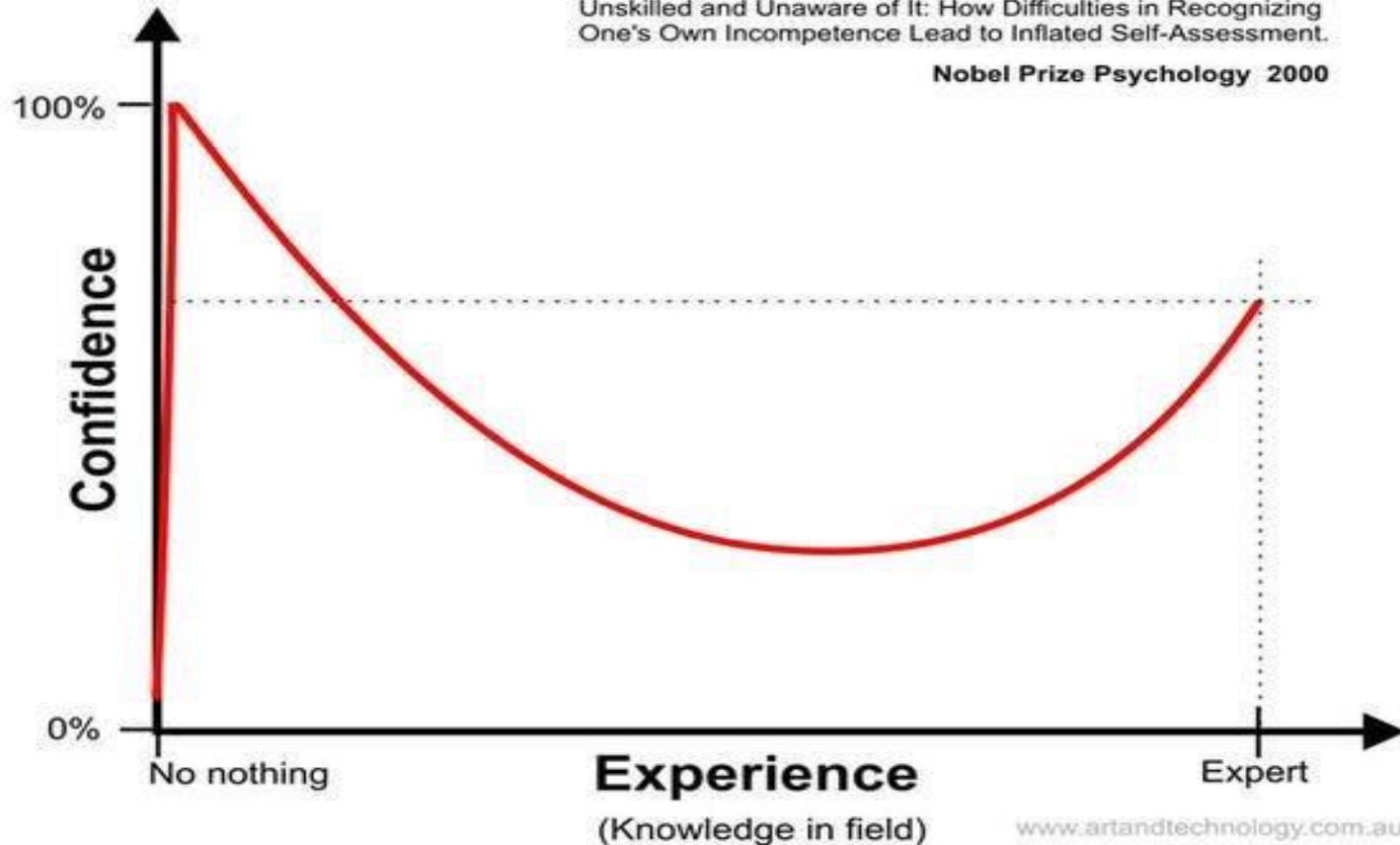
Initial Consensus	IHC Abnormalities	Ki67%	Other Histologic Components	Confirmed Classification
WD-NET		50	G1/G2 WD-NET	WD-NET
WD-NET	DAXX	70	G1/G2 WD-NET	WD-NET
WD-NET	ATRX	50	G1/G2 WD-NET	WD-NET
WD-NET		40	G1/G2 WD-NET	WD-NET
WD-NET	DAXX	35	G1/G2 WD-NET	WD-NET
WD-NET		32	G1/G2 WD-NET	WD-NET
Ambiguous		35	G1/G2 WD-NET	WD-NET
Ambiguous		65	G1/G2 WD-NET	WD-NET
Ambiguous	DAXX	50	G1/G2 WD-NET	WD-NET
Ambiguous	ATRX	35	G1/G2 WD-NET	WD-NET
Ambiguous	DAXX	30	G1/G2 WD-NET	WD-NET
Ambiguous		60	G1/G2 WD-NET	WD-NET
Ambiguous	ATRX	40		WD-NET
Ambiguous	DAXX	80	G1/G2 WD-NET	WD-NET
Ambiguous	DAXX	49	G1/G2 WD-NET	WD-NET
Ambiguous		38	G1/G2 WD-NET	WD-NET
Ambiguous		60	G1/G2 WD-NET	WD-NET
Ambiguous		50	G1/G2 WD-NET	WD-NET
Ambiguous		70	G1/G2 WD-NET	WD-NET
Ambiguous	p53/Rb	88		PD-NEC
Ambiguous	p53/SMAD4	38	Ductal adenocarcinoma	PD-NEC
Ambiguous	p53/Rb	70		PD-NEC
Ambiguous	p53/Rb	85		PD-NEC
Ambiguous	p53	60		PD-NEC
Ambiguous		70		Undetermined
PD-NEC-LCC	DAXX	66	G1/G2 WD-NET	WD-NET
PD-NEC-LCC	Rb	44		PD-NEC
PD-NEC-LCC		26	Ductal adenocarcinoma	PD-NEC
PD-NEC-SCC	p53	80	Ductal adenocarcinoma	PD-NEC
PD-NEC-SCC	Rb	90		PD-NEC
PD-NEC-SCC	p53/Rb	94	Ductal adenocarcinoma	PD-NEC
PD-NEC	Rb	84		PD-NEC
PD-NEC	p53	88		PD-NEC

# Confidence Curve

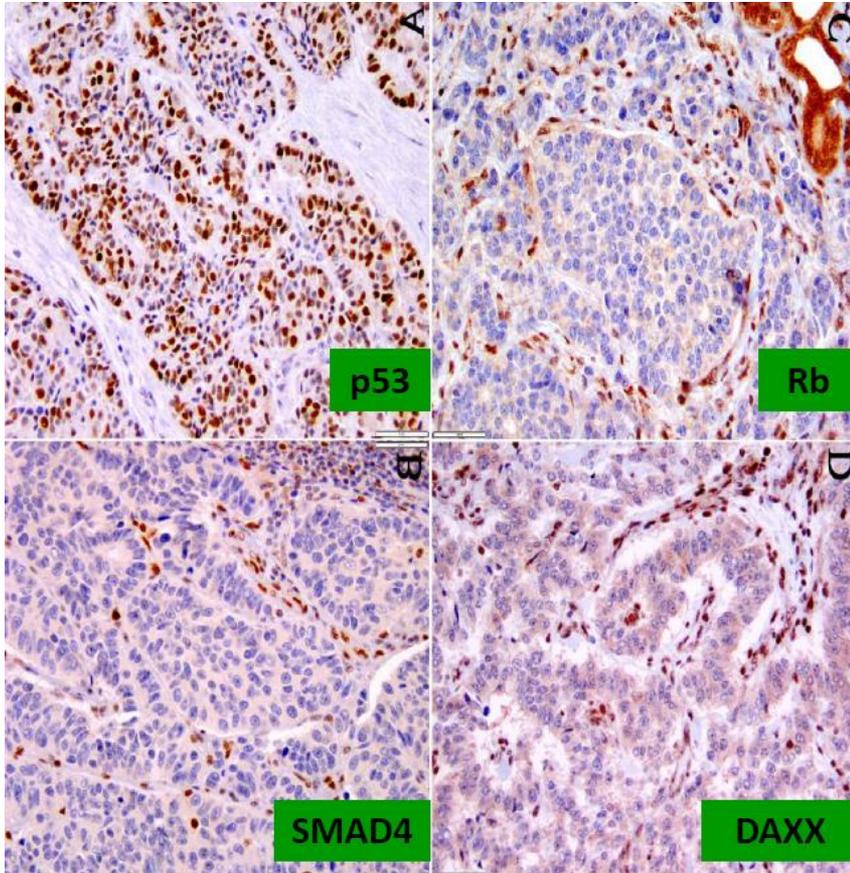
## Dunning-Kruger Effect

Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessment.

Nobel Prize Psychology 2000

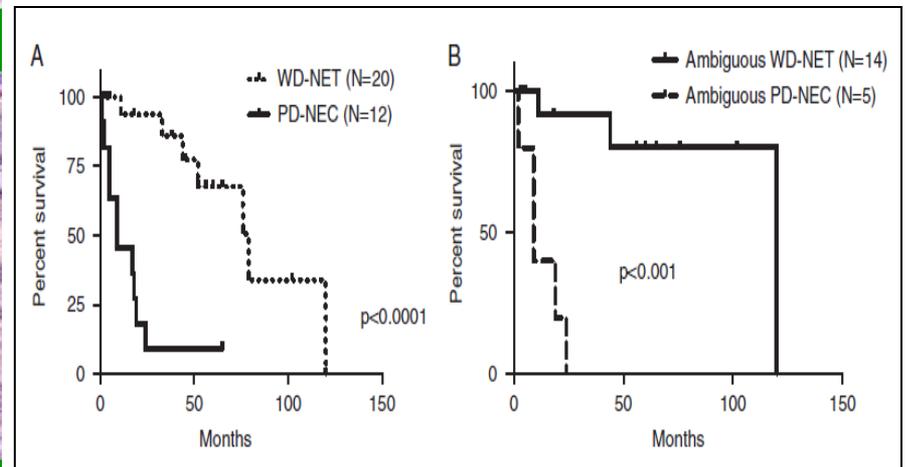


# IHC profile of G3

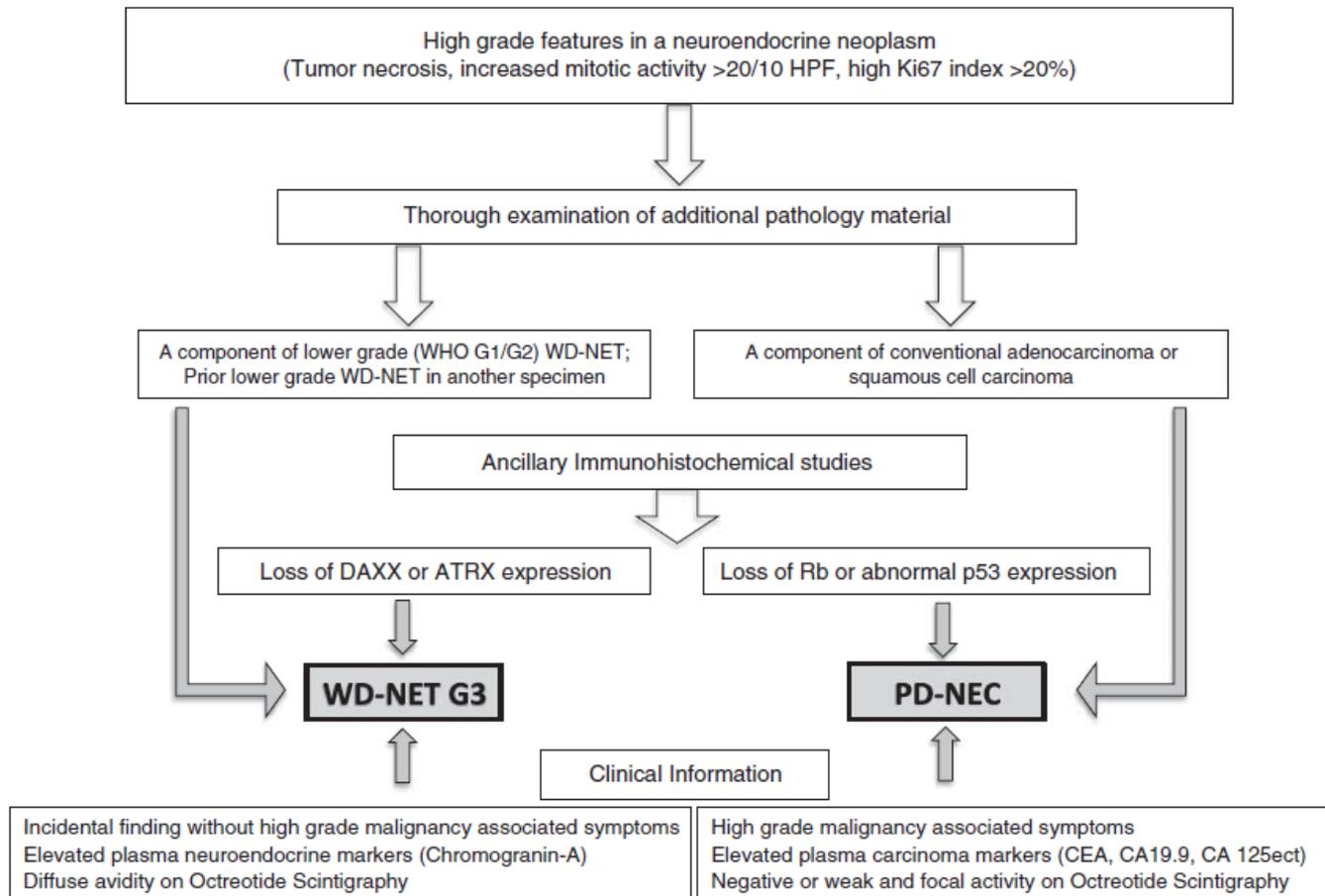


Loss of Rb, SMAD4: PD PanNEC

Loss of ATRX/DAXX: WD PanNET



# Diagnostic algorithm for Pancreatic high-grade neuroendocrine neoplasms



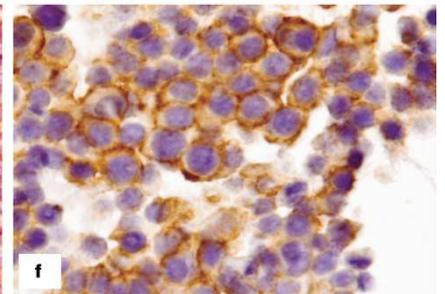
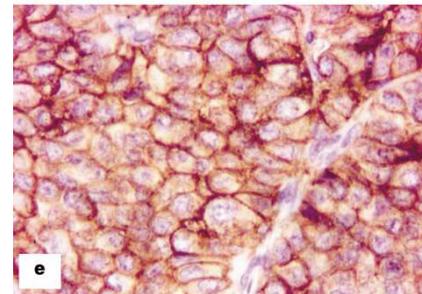
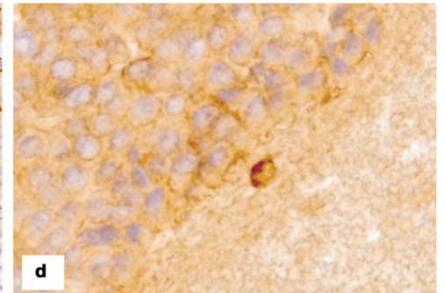
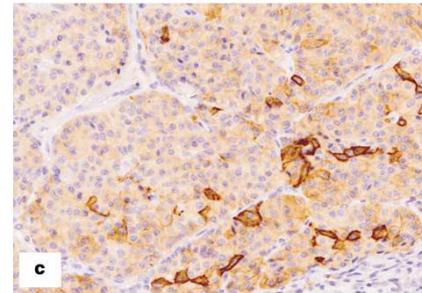
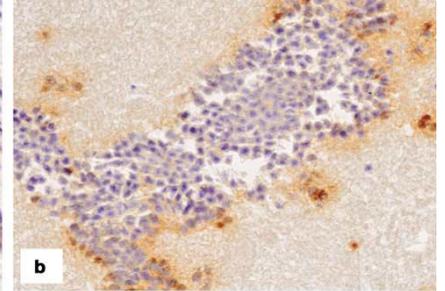
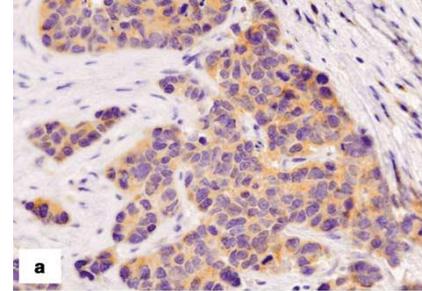
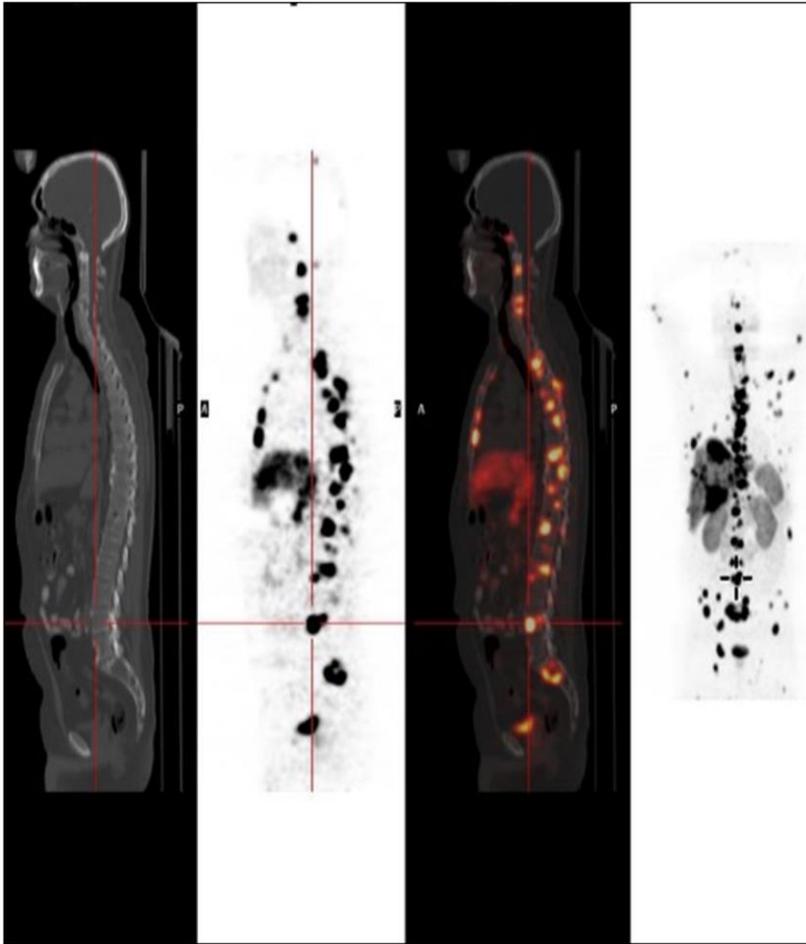
# Pancreas Neuroendocrine Neoplasms

WD PanNET	PD PanNEC
<b>No</b> <i>KRAS</i> , <i>CDKN2A</i> , <i>SMAD4</i> mutations, except rare (~4%) <i>p53</i>	<i>KRAS</i> , <i>CDKN2A</i> , <i>SMAD4</i> and <i>P53</i> mutation
Often have <i>MEN1</i> , <i>DAXX</i> or <i>ATRX</i> mutations	<b>No</b> <i>MEN1</i> , <i>DAXX</i> , <i>ATRX</i> mutations
<b>No</b> <i>RB1</i> mutation	Common <i>RB1</i> mutation

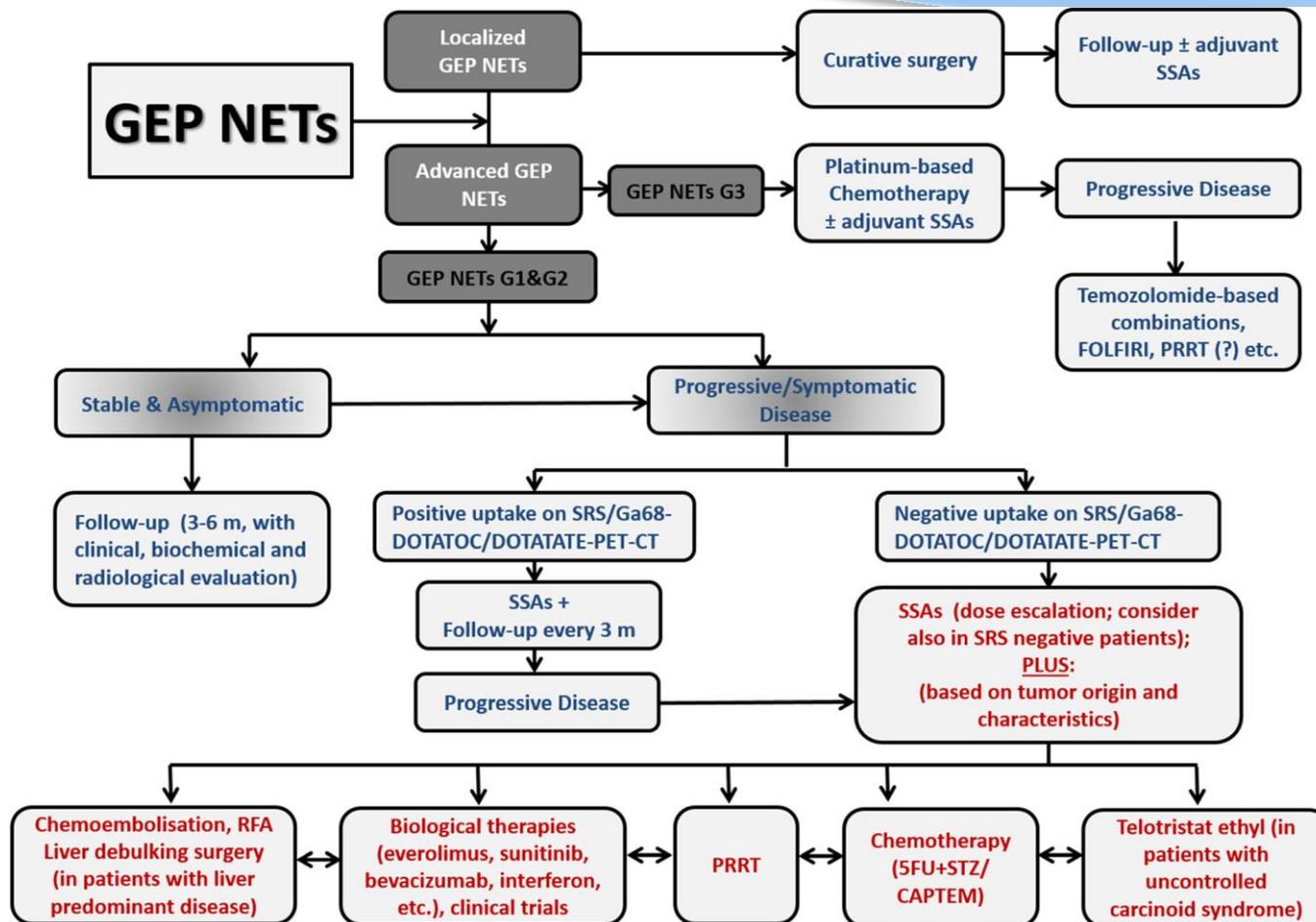
# WHO Neuroendocrine Neoplasm Grading Classifications

WHO 2010	WHO 2017 (in press)
Neuroendocrine tumor (NET) G1/G2	NET G1/G2/G3 (WD neuroendocrine neoplasm)
Neuroendocrine carcinoma (NEC) G3	NEC G3 (PD neuroendocrine carcinoma)
Mixed neuroendocrine carcinoma (MANEC)	Mixed neuroendocrine-nonneuroendocrine neoplasm (MiNEN)

# Somatostatin receptor in NET



# Possible algorithm for treatment approach in patients with GEP-NETs



# KOPANA

- Korean Pathologists Association of North America before USCAP
- Since 2001 (1<sup>st</sup>) ~ 2018 (17<sup>th</sup>)
- 1<sup>st</sup> day (Thu): Ice-Breaker
- 2<sup>nd</sup> day (Fri): Seminar (one day)
- 3<sup>rd</sup> day (Sat): Seminar (half-day) & Annual dinner

# KOPANA Seminar

## 2001 (1<sup>st</sup>)



**1st Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

with  
**Jae Y. Ro, MD  
Professor  
MD Anderson Cancer Center  
Houston, Texas**

- 1) Precursors and early detection of prostate cancers; Recent advances.
- 2) Distinguishing features of seminoma and non-seminomatous germ cell tumors.
- 3) Classification and prognostic factors of bladder cancers

**March 1-3, 2001  
Renaissance Pineisle Resort  
Lake Lanier, Georgia**

For Further Information  
Eun Y. Lee, MD  
General Secretary / Treasurer  
The Korean Pathologists Association of North America  
Department of Pathology  
University of Kentucky  
Lexington, KY 40539  
(859) 257-5469, FAX (859) 323-2094, eylee@pop.uky.edu

## 2003 (2<sup>nd</sup>)



**2nd Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**Soonmyung Paik, MD, PhD  
Director, Division of Pathology  
National Surgical Adjuvant Breast Project (NSABP)**

"Update on HER-2/neu testing and Herceptin  
clinical trials for breast cancers"

**Sandra Shin, MD  
Assistant Professor  
Breast Consultation Service  
Cornell University Hospital**

"E-cadherin and lobular carcinoma of the breast"  
"Uncommon lesions of the breast"  
"Needle core biopsies of the breast"

Registration Fee: \$100

**March 20-22, 2003  
Summerfield Suites by Wyndham Dulles  
Herndon, Virginia**

For Further Information  
Eun Y. Lee, MD  
General Secretary / Treasurer  
The Korean Pathologists Association of North America  
Department of Pathology  
University of Kentucky  
Lexington, KY 40539  
(859) 257-5469, FAX (859) 323-2094, eylee@uky.edu

# KOPANA Seminar

**2004 (3<sup>rd</sup>)**

**3rd Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**Min Woo Lee, MD  
Henry Ford Hospital**

"Neuroendocrine tumor of lung"

**Jae Yun Ro, MD, PhD  
Joong Ang (Asan) Medical Center**

"Practical update on lung cancer"  
"New version of AJCC cancer staging system"

**Eunhee Yi (Suh), MD  
University of California, San Diego**

"Practical update on non-neoplastic lung disease"

**Megan Lim, MD, PhD  
University of Utah Health Sciences Center**

"Diagnostic approach of lymphoma for general surgical pathologists"

Registration Fee: \$150

**March 4-6, 2004  
Vancouver Airport Conference Resort  
Richmond, B.C., Canada**

**2005 (4<sup>th</sup>)**

**4th Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**Dae Young Kang, MD, PhD  
Chungnam National University**

"Selected topics for liver pathology"

**Grace Kim, MD  
University of California, San Francisco**

"Selected topics in GI and liver pathology"

**Eun Young Lee, MD  
University of Kentucky**

"Selected topics in GI and liver pathology"

Registration Fee: \$150

**February 24-26, 2005  
San Antonio Hawthorn Suites LTD  
San Antonio, Texas**

# KOPANA Seminar

**2006 (5<sup>th</sup>)**

**5th Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**Geung Hwan Ahn, MD  
Samsung Medical Center**

“Ovarian borderline tumors”

**Kathleen R. Cho, MD  
University of Michigan**

“Molecular analysis of gynecological cancers”

**Kyu Rae Kim, MD  
Asan Medical Center**

“Practical guideline of placental examination and its clinical relevance”  
“Interpretation of non-neoplastic endometrial disease”

Registration Fee: \$150

**February 9-11, 2006  
AmeriSuites Downtown  
Atlanta, Georgia**

**2007 (6<sup>th</sup>)**

**6th Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**“Dermatopathology for General Pathologists”**

**Min Woo Lee, MD**

**Henry Ford Hospital, Detroit, Michigan**

“Overview of rashes from pathologists perspective: Are they all same rashes with different names?”

**Luke Chung, MD**

**AFIP, Washington, D.C.**

“Cutaneous adnexal tumors: Cardinal dermatopathology, not adnexal dermatopathology”

**Hee Kim, MD**

**Eastern Dermatology-Pathology, Greenville, North Carolina**

“Melanocytic lesions: Searching for the light from darkness”

**Albert Kim, MD**

**Kent Pathology Laboratory, Grand Rapids, Michigan**

“Cutaneous spindle cells lesions: Do you know how to spin the spindle?”

Registration Fee: \$150

**March 22-24, 2007  
The Bristol Hotel  
San Diego, California**

# KOPANA Seminar

**2008 (7<sup>th</sup>)**

**7th Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**"Bone and Soft Tissue Tumors"**

**Jae Yun Ro, MD**  
Methodist Hospital, Houston, Texas  
"General considerations of soft tissue sarcomas"

**Joon Hyuk Choi, MD**  
Yeungnam University, Daegu, Korea  
"Diagnostic approach of soft tissue tumors"

**Yong Koo Park, MD**  
Kyung Hee University, Seoul, Korea  
"Radiologic and pathologic correlation of the bone tumors and tumorous lesions"

**Yeongju Dancer, MD**  
Methodist Hospital, Houston, Texas  
"FNA of bone and soft tissue tumors"

Registration Fee: \$150

**February 28 - March 1, 2008**  
The Brown Palace Hotel  
Denver, Colorado

**2009 (8<sup>th</sup>)**

**8th Spring Seminar  
of the  
Korean Pathologists Association  
of North America**

**"BREAST CANCER"**

**Soonmyung Paik, MD**  
Director of Pathology, NSABP, Pittsburgh, PA  
"Prediction of response to systemic therapy for breast cancer"

**Sandra Shin, MD**  
Weill Cornell Medical College, New York, NY  
"Diagnosis and associated pitfalls in needle core biopsies of the breast"

**Gyung Yub Gong, MD**  
Asan Medical Center, Seoul, Korea  
"Prognostic and predictive factors in breast cancer"

**Young Kyung Bai, MD**  
Yeungnam University, Daegu, Korea  
"Molecular classification of breast cancer"

**"Special Lecture"**

**Eric E. Walk, MD**  
Senior VP & Chief Medical Officer, Ventana Medical Systems, Inc.  
"The role of pathologists in the era of personalized medicine"

Registration Fee: \$150

**March 5-7, 2009**  
The Midtown Hotel  
Boston, Massachusetts

# KOPANA Seminar

## 2010 (9<sup>th</sup>)

### 9th Spring Seminar of the Korean Pathologists Association of North America

#### "Gastrointestinal and Liver Tumors"

**Young Nyun Park, MD, PhD**  
Yonsei University College of Medicine, Seoul, Korea  
"Pathological diagnosis of dysplastic nodule and early HCC  
: new pathology criteria and molecular signatures"

**Kyoung Mee Kim, MD, PhD**  
Sungkyunkwan University School of Medicine, Seoul, Korea  
"Pathology and adenocarcinoma of gastroesophageal junction"

**Gyeong Hoon Kang, MD, PhD**  
Seoul National University College of Medicine, Seoul, Korea  
"Molecular classification of colon cancer"

**Seung-Mo Hong, MD, PhD**  
Johns Hopkins Medical Institutions, Baltimore, Maryland  
"Update on pancreatic cancer and precursor lesions"

**Jason Y. Park, MD, PhD**  
Johns Hopkins Medical Institutions, Baltimore, Maryland  
"Molecular testing in gastrointestinal and pancreatic cancer"

Registration Fee: \$150

March 18-20, 2010

The Churchill Hotel  
1914 Connecticut Avenue, NW  
Washington, DC 20009  
Tel: 202-797-2000, Fax: 202-328-1984

## 2011 (10<sup>th</sup>)

### 10th Spring Seminar of the Korean Pathologists Association of North America

#### "Pulmonary Pathology"

**Jae Y. Ro, MD, PhD**  
Methodist Hospital/Cornell University, Houston, Texas  
"Pathologist's role in multidisciplinary team approach on lung cancer"

**Kun Young Kwon, MD, PhD**  
Keimyung University, Taegu, Korea  
"Interpretation of lung biopsy"

**Eun Hee Yi (Suh), MD**  
Mayo Clinic, Rochester, Minnesota  
"Pathology of non-neoplastic lung lesions"

**Soon Hee Jung, MD, PhD**  
Wonju College of Medicine, Yonsei University, Wonju, Korea  
"Pathology of mesothelioma; recent advances"

**Se Jin Jang, MD, PhD**  
Asan Medical Center/Ulsan University, Seoul, Korea  
"Molecular pathology of lung cancer"

Registration Fee: \$150

February 24-26, 2011

Hyatt Place San Antonio Riverwalk Hotel  
601 S. St. Mary's Street  
San Antonio, TX 78205  
Tel: 210-227-6854, Fax: 210-227-1247

# KOPANA Seminar

## 2012 (11<sup>th</sup>)

**11th Spring Seminar of the Korean Pathologists  
Association of North America**

**“GU Cancers”**

**Thomas Lee, MD, PhD**

CellNetix Pathology, Seattle, Washington

*“Recent Advances in prostate pathology and ISUP consensus”*

**Ghee Young Kwon, MD, PhD**

Samsung Medical Center, Seoul, Korea

*“Recent Advances in urinary bladder tumors”*

**Ghil Suk Yoon, MD, PhD**

Kyungpook National University, Daegu, Korea

*“Molecular pathology in GU tumors for general surgical pathologists”*

**Yong Mee Cho, MD, PhD**

Asan Medical Center, Seoul, Korea

*“Recent Advances in kidney tumors”*

**Jae Y. Ro, MD, PhD**

Methodist Hospital/Cornell University, Houston, Texas

*“Prognostic factors and pathologist’s role  
in modern targeted therapy for GU cancer”*

**Jeri Kim, MD**

Department of Genitourinary Medical Oncology

MD Anderson Cancer Center, Houston, Texas

*“What do clinicians need from pathologists?”*

**Registration Fee: \$150**

**March 15-17, 2012**

**Days Inn Vancouver Downtown**

**921 West Pender Street**

**Vancouver, BC Canada V6C 1M2**

## 2013 (12<sup>th</sup>)

**12th Spring Seminar of the Korean Pathologists  
Association of North America**

**“GYN Pathology”**

**George G. Ahn, MD, PhD**

University of San Francisco, California

*“Practical Issues in Ovarian Pathology”*

**Kathleen R. Cho, MD**

University of Michigan, Michigan

*“Ovarian Cancer Pathogenesis:*

*Insights from Morphology, Molecules, and Mice”*

**Sung Ran Hong, MD, PhD**

Cheil General Hospital & Women’s Health Care Center, Seoul, Korea

*“Practical Issues in Endometrial Pathology”*

**Grace Kim, MD**

University of San Francisco, California

*“Diary of Intrauterine Life”*

**Insun Kim, MD, PhD**

Korea University, Seoul, Korea

*“Endometriosis-related Disorders”*

**Kyu-Rae Kim, MD, PhD**

Asan Medical Center, Seoul, Korea

*“Gestational Trophoblastic Diseases”*

**Kay J. Park, MD**

Memorial Sloan Kettering Cancer Center, New York

*“Cervical Adenocarcinoma, a Heterogenous Entity”*

**Registration Fee: \$150**

**February 28 - March 2, 2013**

**Hampton Inn & Suites Baltimore Inner Harbor**

**131 East Redwood Street, Baltimore, MD 21202**

# KOPANA Seminar

## 2014 (13<sup>th</sup>)

### 13th Spring Seminar of the Korean Pathologists Association of North America

#### "Breast Pathology"

**Sophia Apple, MD**

University of California Los Angeles, Los Angeles  
*"Fibroepithelial lesions and stromal tumors of breast"*

**Gyung Yub Gong, MD, PhD**

Asan Medical Center (University of Ulsan College of Medicine), Seoul  
*"In situ breast carcinomas (ductal and lobular)"*

**Woo Hee Jung, MD, PhD**

Yonsei University, Seoul  
*"Invasive carcinomas and important variants"*

**Soonmyung Paik, MD**

NASBP, Pittsburgh & Yonsei University, Seoul  
*"Prognostic/predictive markers and cancer genome atlas (TCGA) in breast cancer"*

**Jae Y. Ro, MD, PhD**

Methodist Hospital/Weill Medical School of Cornell University, Houston  
& Ewha Womens University, Seoul

&

**Jungsil Ro, MD, PhD**

National Cancer Center, Goyang-si  
*"Pathologist's role in multidisciplinary team approach in breast cancer"  
and "Routines and beyond routines by pathologist"*

**Sandra Shin, MD**

Weill Cornell Medical College, New York  
*"Benign mimics of malignancy in breast pathology"*

Registration Fee: \$150

February 27 - March 1, 2014

Hampton Inn San Diego Downtown  
1531 Pacific Highway, San Diego, CA 92101

## 2015 (14<sup>th</sup>)

### 14th Spring Seminar of The Korean Pathologists Association of North America

#### "GI, Liver, & Pancreaticobiliary Pathology"

**Seung-mo Hong, MD, PhD**

Asan Medical Center, Seoul, Korea  
*"Recent updates of gastrointestinal and pancreaticobiliary neuroendocrine tumors"*

**Kee-Taek Jang, MD, PhD**

Samsung Medical Center, Seoul, Korea  
*"The concept of tumoral intraepithelial neoplasia of biliary tract and gallbladder"*

**Gyeong-hoon Kang, MD, PhD**

Seoul National University, Seoul, Korea  
*"Clinicopathological and prognostic features of CIMP and/or MSI-high colorectal cancer"*

**Grace Kim, MD**

UC San Francisco, San Francisco, California  
*"Hepatic adenoma & FNH"*

**Hwa-jeong Lee, MD**

Albany Medical College, Albany, New York  
*"Inflammatory bowel disease"*

**Do-yoon Park, MD, PhD**

Pusan National University, Pusan, Korea  
*"Practical points in gastric pathology-cases and controversies"*

**Jason Park, MD, PhD**

UT Southwestern, Dallas, Texas  
*"Advanced molecular diagnostics in gastrointestinal pathology"*

**Eunsil Yoo, MD, PhD**

Asan Medical Center, Seoul, Korea  
*"Histopathological and molecular classification of hepatocellular carcinoma"*

Registration Fee: \$150

March 19-21, 2015

The Midtown Hotel

220 Huntington Avenue, Boston, MA 02115

# KOPANA Seminar

## 2016 (15<sup>th</sup>)

**15th Spring Seminar of  
The Korean Pathologists Association of North America**

**“Pulmonary Pathology”**

**Jae Y Ro, MD, PhD**

Methodist Hospital/Weill Medical School of Cornell University, Houston, TX  
*“Changing role of pathologists on lung cancer diagnosis”*

**Mee-Sook Roh, MD, PhD**

Dong-A University College of Medicine, Busan, Korea  
*“What is new in 2015 WHO book on Lung Cancers?”*

**Jin-Haeng Chung, MD, PhD**

Seoul National University Bundang Hospital, Bundang, Korea  
*“Approach to biomarker testing of lung cancers; IASLC recommendation”*

**Chi Young Ok, MD**

MD Anderson Cancer Center, Houston, TX  
*“Introduction to NGS technique and its application in MDACC”*

**Yoon-La Choi, MD, PhD**

Samsung Medical Center, Seoul, Korea  
*“Current status of molecular pathology in Korea”*

**Michael Roh, MD, PhD**

University of Michigan Health System, Ann Arbor, MI  
*“The utilization of fine-needle aspirates of lung cancer for molecular diagnostic testing”*

**Lucia Kim, MD, PhD**

Inha University Hospital, Incheon, Korea  
*“Thymic epithelial tumors; update in 2016”*

**Sunhee Chang, MD, PhD**

Inje University Ilsan Paik Hospital, Goyang, Korea  
*“The role of immunohistochemistry in the diagnosis of malignant mesothelioma”*

**Joanne Eunhee Suh Yi, MD**

Mayo Clinic, Rochester, MN  
*“Interstitial lung disease and pulmonary vasculitides: update in 2016 with vignette cases”*

Registration Fee: \$150

March 10-12, 2016

Springhill Suites Marriot Seattle Downtown

## 2017 (16<sup>th</sup>)

**16th Spring Seminar of  
The Korean Pathologists Association of North America**

**“Recently described, clinically relevant entities”**

**Sunhee Lee, MD**

Albert Einstein College of Medicine Hospital  
*“CNS tumors: the new 2016 WHO classification”*

**Won Woo Shon, MD**

Cedars Sinai Hospital  
*“Recently characterized soft tissue tumors and tumor-like lesions”*

**Geon-gook Lee, MD, PhD**

National Cancer Center, Ilsan, Korea  
*“Recently described, clinically relevant entities in the lung & mediastinum”*

**Han Kyeom Kim, MD, PhD**

Korea University Ansan Hospital, Ansan, Korea  
*“Mummies”*

**Stephen Koh, MD**

Kaiser Permanente  
*“Immunohistochemistry on melanocytic lesions”*

**Michael Roh, MD, PhD**

University of Michigan Health System, Ann Arbor, MI  
*“The utilization of fine-needle aspirates of lung cancer for molecular diagnostic testing”*

**Thomas Lee, MD**

UC Irvine Health/Science of Medicine  
*“New and Old Clinically Significant Lesions in the Genitourinary Tract”*

**Kyung-Ja Cho, MD, PhD**

Asan Medical Center, Seoul, Korea  
*“Recent changes of classification of squamous intraepithelial lesions of the head and neck”*

**Soo-Jin Cho, MD, PhD**

UC San Francisco  
*“What's Old is New Again in the GI Tract - From the Mundane to the Exotic”*

**Sung Sik Shin, MD**

Kaiser Permanente  
*“2016 WHO Lymphoma Classification”*

**Michael Roh, MD, PhD**

Mayo Clinic Rochester  
*“Serous tubal intraepithelial carcinoma and pelvic serous carcinogenesis”*

Registration Fee: \$150

March 2-4, 2017

Hyatt Place San Antonio Riverwalk

# The 17<sup>th</sup> KOPANA Seminar 2018

- Title: Critical review and appraisal of the latest AJCC and/or WHO classification
- Time: March 15 ~17
- Place: The Sutton Place Hotel, Vancouver, Canada
- Speakers: Jae Y. Ro, Sophia Apple, Young Hyeon Ko, Chan Kwon Jung, Yong Mee Cho, Kyu Rae Kim, Joon Hyuk Choi, Maria Westterhoff, Won Tak Choi, Kee-Taek Jang, Jin Haeng Chung
- Trainee presentation: Christopher Bowman, Hayeon Kim, Sang Joon Choi

# How about Japan & China?

## Japan Night

IAP Japanese Division  
USCAP Annual Meeting,  
March 4-10 2017

Tuesday 7<sup>th</sup> March, 2017  
17:30-19:30

Presidio C, Floor 3, Grand Hyatt San Antonio  
San Antonio, TX, USA



Canapés/ Cash Bar/ Entrance fee: \$60.00  
No reservation is required

For more information, please contact:  
Tokyo Office, Japanese Division of the IAP  
Tel: +81-50-5274-8683 Email: [tokyo.office@iapjapan.org](mailto:tokyo.office@iapjapan.org)  
On site contact: +81-90-9950-6576 (Dr. Matsubara)

~Japan Nightのお知らせ~  
2017年3月7日(火)17:30~19:30  
Presidio C, Floor 3, Grand Hyatt San Antonioにて  
Convention Center 学会場から徒歩5分  
タパス、デザートを用意しております  
ドリンクは各自負担(キャッシュバー)  
会費:60ドル  
US紙幣のみ、なるべくお釣りのないようお願いします  
予約は不要です 当日ご自由にお越しください

お問い合わせ:IAP 日本文部東京事務局  
TEL: 050-5274-8683 E-mail: [tokyo.office@iapjapan.org](mailto:tokyo.office@iapjapan.org)  
当日現地での連絡先: +81-90-9950-6576 (Dr.松原)



CHINESE AMERICAN PATHOLOGISTS ASSOCIATION

~全美华人病理学会~

VOLUME 3 ISSUE 1 2017

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#### Editing Team:

Huan-You Wang  
Fan Chen  
Yansun Li  
Guanlan Chen  
Hui Guan

#### Designer and Editor-in-Chief:

Fan Chen



## CAPA e Newsletter

### The President's Message

**D**ear CAPA Members:  
It is my great honor and privilege to serve you, as the CAPA president for 2017-2018. Since its establishment in 2003, and with continuous and collective efforts from our past presidents, officers of all subcommittees, and all active members, CAPA has become a national and internationally recognized pathologist organization with about 750 members today.

CAPA consists of a very broad membership in both academic and private practice; in both Anatomic Pathology and Clinical Pathology; with both "experienced" and "young" pathologists. As a group, we are extremely accomplished, with many nationally and internationally known pathologists and tenured professors in major medical centers. We have members serve as Department Chairs and Directors for anatomic pathology in top US/Canadian universities, directors for residency and fellowship programs across the country, and directors/business owners in various settings of private practices.

The #1 mission of CAPA is to serve our members. As we move forward, I will work with the past president Dr. Wang, the president-elect Dr. Gong, current and newly elected officers, EC members, all subcommittees, and all members towards the following goals and CAPA events for 2017-2018.

#### Education

- 1) The 3rd CAPA diagnostic Pathology Course (Chicago, August 19-20, 2017)
- 2) The third CAPA-Beijing Pathology Symposium (Beijing, September 2-3, 2017)
- 3) The second CAPA Companion Meeting at 2017 CAP (National Harbor, October 7-11, 2017)
- 4) The first CAPA Pathology Symposium in

China (Dali, October 21-22, 2017);

5) The CAPA companion meeting at Chinese Pathology Society Meeting (Suzhou, October 26-29, 2017).

6) The CAPA Annual Meeting at 2018 USCAP (Vancouver, March 2018)

7) The online educational courses in US (Officially launched March 2017).

#### Publication

1) To improve our website and create a member-only domain

2) To continue our quarterly newsletters with news from all of our members

#### Other Missions

1) To re-organize CAPA subcommittees with special mentoring subcommittee for our junior members and chapters for each subspecialty.

2) To work with national and international pathology societies, including subspecialty pathology societies, and promote bigger roles of our members in these societies.

3) To continue grow with new members and more sponsorships.

Together, anything is possible. Let's get to work.

Ping Tang, MD, PhD  
CAPA President 2017-2018  
Professor and Director of Breast Pathology  
University of Rochester Medical Center  
Rochester, NY



# CAPA

## The CAPA Annual Report 2016-2017 (Cont'd)

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### CAPA-Motic Best Abstracts Award

#### FIRST PLACE PRIZE

Shuang-Mei Zou et al. Peking Union Medical College, Cancer Hospital, Chinese Academy of Medical Sciences, Beijing, The Extensive Heterogeneity between Primary and Metastatic Colorectal Carcinoma Detected by Next Generation Sequencing

#### SECOND PLACE PRIZE

Jing Li, et al. Department of Pathology, KingMed Diagnostics, Guangzhou, Experience and Analysis of 2087 Frozen Section Diagnoses Using Digital Telepathology

Wenhao Ren et al. Department of Pathology and Resident Training Base, Cancer Hospital, Peking Union Medical College and Chinese Academy of Medical Sciences, Beijing, Value of Cytopathologic Diagnosis in Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration and Endoscopic Ultrasound-guided Fine Needle Aspiration

#### THIRD PLACE PRIZE

Mingyang Li, et al. Department of Pathology, Xijing Hospital, Fourth Military, Anaplastic Variant of Diffuse Large B-cell Lymphoma Displays Intricate Genetic Alterations and Distinct Biological Features

Lan Chen et al. Department of Pathology, Beijing Hospital, National Center of Gerontology, Beijing, Cytopathological Diagnosis of Hematolymphoid Neoplasms in Serosal Effusion: An Algorithmic Approach Combining Morphology, Immunophenotyping and Genomics

Yu Shi et al. Institute of Pathology and Southwest Cancer Centre, Southwest Hospital, the Third Military Medical

University, Chongqing, Tumor-Associated Macrophages Secrete Pleiotrophin to Promote PTPRZ1 Signaling in Glioma Stem Cells and Support Tumor Growth

Special thanks to the CAPA Award Committee, led by Dr. Hanlin Wang and Dr. Guoping Cai; the CAPA-GoPath best abstract review panel: Dr. Ruqing Huang, Dr. Haiyan Liu, Dr. Yan Peng, Dr. Hua Yang, Dr. Xinmun Zhang, and Dr. Chengquan Zhao; the CAPA-Motic best abstract review panel: Dr. Marilyn Bui, Dr. Wenqing Cao, Dr. Beiyun Chen, Dr. Xiaohua Qian, Dr. Lanjing Zhang, and Dr. Chen Zhou, and CAPA EC members for their dedications and efforts to make the selection for the above 2017 CAPA award winners.

In summary, CAPA is well-prepared and positioned for future growth. We are CAPA and we are connected. Together, we are making CAPA a stronger and better organization.

It has been my immense privilege and great honor to have served as the CAPA President 2016-2017! My professional life has been greatly enriched, inspired, and influenced by the many friends and colleagues I have met along the way especially those with whom I have had close interactions during the past year. I want to thank the CAPA Executive Committee, subcommittees, all the dedicated members and volunteers who worked closely with me to accomplish these ambitious goals. Again, I want to thank all sponsors for their very generous support of CAPA. We are very fortunate to have Dr. Ping Tang leading our organization for the next term. Dr. Tang and the entire CAPA leadership team will take the CAPA to the next level.

Huamin Wang, M.D., Ph.D.  
On Behalf of the CAPA EC  
CAPA President, 2016-2017  
Professor, University of Texas M.D. Anderson Cancer

## Third China-US Pathology Symposium: The Next Generation of Pathology

Co-organized by Chinese Society of Pathology (CSP) and Chinese American Pathologists Association (CAPA)

Sponsored by Chinese Association of Medicine

8:30 am to 1:30 pm, Saturday, March 4, 2017  
RC salon E (3rd FL), Marriott Rivercenter, San Antonio, TX, USA

Program chairs: Drs. Xiu-Wu Bian and Huamin Wang  
Executive chairs: Drs. Xiang Du and Lanjing Zhang  
Advisors: Drs. Jie Chen and Jinsong Liu

8:00 - 8:30 Registration (No registration fee)

8:30 - 8:35 Introduction and Welcome by Drs. Dr. Xiu-Wu Bian (Southwestern Hospital, Third Military Medical University) and Huamin Wang (University of Texas MD Anderson Cancer Center)

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## Third China-US Pathology Symposium (Cont'd)

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### Hot Topics Session I

Moderators: Dr. Xiang Du (Fudan University Cancer Center)  
Dr. Ping Tang (University of Rochester Medical Center)

8:35 - 9:00 Cardiac stem cells may lead to cardiac repair post myocardial infarction  
Dr. Guoping Wang (Tongji Medical College, HUST)

9:00 - 9:25 Testicular neoplasms: cases-based presentation and review of immunohistochemistry.  
Dr. Fan Lin (Geisinger Medical Center)

9:25 - 9:50 Current status and progress of the basic and clinical research of colorectal cancer in China. Dr. Li Liang (Southern Medical University)

9:50 - 10:15 IHC working algorithms for ENT pathology: a case-based approach.  
Dr. Beverly Wang (UC Irvine)

10:15 - 10:30 Break

### Hot Topics Session II

Moderators Dr. Guoping Wang (Tongji Medical College, HUST)  
Dr. Lanjing Zhang (Princeton HealthCare System/Rutgers University)

10:30 - 10:55 Current status and problems of the pathology quality-control in China.  
Dr. Jie Chen (Peking Union Medical College)

10:55 - 11:20 Managing an academic department of pathology: How do young faculty prepare for it? Dr. Jiaoti Huang (Duke University Medical Center)

11:20 - 11:45 Precision pathology guides next generation of pathology. Dr. Xiu-Wu Bian (Southwestern Hospital, Third Military Medical University)

11:45 - 12:10 Molecular / genomic alterations in lymphoma / leukemia - Brief review and practice applications. Dr. Huan-You Wang (UC San Diego)

12:10 - 12:30 Break

### Case Discussions (12:30- 1:30)

Moderators: Dr. Jie Chen (Peking Union Medical College)  
Dr. Yun Gong (University of Texas MD Anderson Cancer Center)

Case #1: Peking Union Medical College, Chinese Academy of Medical Sciences

Case #2: Tongji Medical College, Huazhong University of Science & Technology

Case #3: Shanghai Cancer Center, Fudan University

Case #4: West China Hospital, Sichuan University

Case #5: Southwestern Hospital, Third Military Medical University

# CAPA

## The CAPA Annual Report 2016-2017 (Cont'd)

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### CAPA AWARDS

**CAPA Honorary Award:** The CAPA Honorary Award was created in 2015 to recognize a person (CAPA member or non-member) who has made a significant contribution to CAPA. Dr. Fan Lin was unanimously selected by the CAPA award committee and EC members to receive the 2017 CAPA Honorary Award. Congratulation to Dr. Lin!



**Dr. Fan Lin** is the deputy editor-in-chief of the Archives of Pathology & Laboratory Medicine, Director of Anatomic Pathology at Geisinger Health System. He received his M.D. from Fujian Medical University and Ph.D. in Biological Sciences from the University of North Texas. He completed AP/CP residency training at the University of Chicago Hospital in 1999, followed by one year of Cytopathology fellowship training at MD Anderson Cancer Center. He has authored over 80 articles in peer-reviewed pathology journals, over 20 book chapters, and presented over 175 posters/platform presentations at pathology society meetings. He leads the Geisinger Anatomic Pathology group in making contribution to the field of immunohistochemistry, including publishing "Handbook of Practical Immunohistochemistry – Frequently Asked Question, 2nd edition" and its free companion IHC website ([www.ihcfaq.com](http://www.ihcfaq.com)), and contributing 2 special issues on IHC updates to the Archives of Pathology and Laboratory Medicine in 2014 and 2015. Dr. Lin is a reviewer for many pathology journals. Dr. Lin has been a member of CAPA since the establishment and former president of CAPA (2015-2016). Under the leadership of Dr. Lin, CAPA achieved many major mile stones: organized the first CAPA Diagnostic Pathology Course in New York City; edited a special issue of review articles to highlight the lectures presented at the First CAPA Diagnostic Pathology Course in NYC in Archives of Pathology and Laboratory Medicine; co-organized the first CAPA-Beijing Diagnostic Pathology Course in Beijing; published the quarterly CAPA eNewsletters; initiated the first CAPA Companion Meeting at the 2016 CAP meeting; recruited many more members, including many lifetime members; attracted more sponsors to make CAPA more financially stable and healthier than ever; created two new CAPA awards – CAPA Honorary Award and CAPA Member of the Year Award etc. We thank Dr. Lin for his outstanding leadership, dedication and contributions to CAPA.

**The CAPA President's Award:** This award was created by CAPA EC this year to recognize the distinguished international pathologists for their contributions to CAPA. The CAPA award committee and EC members selected two well-known pathologists from China, Dr. Xiu-Wu Bian and Dr. Ning Lu, to receive the CAPA President's Award this year. Congratulations to Dr. Bian and Dr. Lu!

**Dr. Xiu-Wu Bian** is a professor and the director of the Institute of Pathology and Southwest Cancer Center, Southwest Hospital, Third Military Medical University. He is the President of Chinese Society of Pathology (CSP) (2013-2016), the vice Chairman of Chinese Association of Pathologists (CAP) (2013-2017) and the President-elect of Tumor Metastasis Research Committee of Chinese Anti-cancer Association (CACA) (2015-2018). Dr. Bian is the Leading Scientist of "Ten-thousand Talents" Program of China and the "Changjiang Scholar" of Education Ministry of China. His research interest is the interaction of cancer stem cells with tumor microenvironment. His "cancer stem cell research team" is a National Innovation Team. He is the Chief Scientist of National Basic Research Program (973) in cancer stem cells. As corresponding author, he has published 86 peer-reviewed papers in international English journals including *Cell Stem Cell*, *PNAS*, *JNCI*, *Nat Commun*, *Cancer Res*, *Hepatology*, *J Pathol*, etc. He was awarded as the first accomplisher for the first prize of National Science and Technology Progress Award of China, the first prize of Chinese Medical Association Award, and the first prize of Science and Technology Award from CACA. In 2015, he was honored with "Distinguished Pathologist Award" by American Society of Clinical Pathology (ASCP) and Chinese American Pathologists Association (CAPA). As the director, Dr. Bian organized and provided full financial support for the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> China-CAPA Pathology Forums in conjunction with the USCAP Annual Meetings in the last three years. These meetings were very well attended by the leading pathologists from China and the pathologists from CAPA. In addition, Dr. Bian has also invited many CAPA speakers to the CSP annual meeting in China in the last three years. Through these platforms, Dr. Bian has made outstanding contributions to CAPA and promoted the communications and collaborations between CAPA and the pathology community in China.



**Dr. Ning Lu** graduated from the Beijing Medical College (currently Medical College of Beijing University) in 1982. She is a professor and the chairman of the Department of Pathology National Cancer Center (NCC)/Cancer Hospital, Peking Union Medical College (PUMC), Chinese Academy of Medical Sciences (CAMS), Beijing, China. Dr. Lu is also the deputy director of the Department of Pathology, PUMC, the vice chairman of the Beijing Branch of the Pathology, Chinese Medical Association, the vice chairman of the Tumor Pathology, Chinese Anti-Cancer Association, Trustee of the Beijing Association of Pathologist and members of the Pathological branch of Chinese Medical Association and the Chinese Association of Pathologist.



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## The CAPA Annual Report 2016-2017 (Cont'd)

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**Dr. Lu** is a well-known pathologist in China specialized in neoplastic pathology and molecular pathology. Dr. Lu successfully organized and served as the directors of the First and Second joint CAPA-Beijing Pathology Summits in Beijing and partially sponsored many CAPA speakers to these meetings in 2015 and 2016. Both meetings included many expert pathologists from China as speakers and provided a unique platform to promote the communications and collaborations between CAPA and the pathology community in China. Dr. Lu is currently planning for the 3<sup>rd</sup> CAPA-Beijing Pathology Summit with CAPA, which will be held in Beijing in September, 2017.

**The CAPA/ACD Distinguished Pathologist Award:** Dr. Jiaoti Huang and Dr. Qihui "Jim" Zhai are the recipients of this CAPA award. Congratulations to Dr. Huang and Dr. Zhai!

**Dr. Jiaoti Huang** is Professor and Chairman of the Department of Pathology at Duke University. He earned his medical degree from Anhui Medical University, Master degree from the Institute of Radiation Medicine in Beijing and his PhD from New York University School of Medicine. Dr. Huang was a Leukemia Medicine of America Postdoctoral Fellow at NYU and Yale University. He did residency training in pathology at NYU School of Medicine and a fellowship in Oncologic Surgical Pathology at Memorial Sloan-Kettering Cancer Center. He became an assistant professor at the University of Rochester in July 2000 and rose to the rank of full professor in 2007. Dr. Huang moved to UCLA in 2008 and came to Duke at the beginning of 2016. Dr. Huang's clinical expertise is in the pathologic diagnosis of genitourinary tumors. His research focuses on the molecular mechanisms, biomarkers and novel therapies for advanced prostate cancer. Dr. Huang's laboratory is a leader in studying neuroendocrine differentiation of prostate cancer and molecular pathogenesis of prostatic small cell neuroendocrine carcinoma. Dr. Huang has published 200 research papers, review articles and book chapters. He has been continuously supported by grants from NIH, American Cancer Society, Department of Defense, Prostate Cancer Foundation, and Stand Up to Cancer. Dr. Huang served as the member of 2017 CAPA election committee.



**Dr. Qihui "Jim" Zhai** is a professor of pathology, consultant pathologist and director of FISH Laboratory in Mayo Clinic Florida. He completed his pathology residency at Mayo Clinic Rochester (2002) followed by an oncologic pathology fellowship at MD Anderson Cancer Center (2002-2003). He joined Baylor College of Medicine as assistant professor (2003), then Houston



Methodist Hospital/Cornell University as associate professor (2004-2009), and was recruited to University of Cincinnati as professor (2009). He climbed the academic ladder from assistant to full professor within six short years. Dr. Zhai is a well-sought-after international speaker in head and neck and urological pathology. He is a competent diagnostician and his expertise and interests in translational research contributed significantly to the pathology literature. He published about 100 peer-reviewed original manuscripts, several hundred abstracts, and authored/co-authored seven popular pathology textbooks. He is on the editorial board of several reputable pathology journals and Editor-in-Chief of *International Journal of Clinical and Experimental Pathology*. Dr. Zhai has been actively involved with state and national pathology societies, including USCAP Education Committee, CAP Nomination Committee, Publication Committee, and Surgical Pathology/Immunohistochemistry Committee. He was President Elect of Houston Society of Clinical Pathologists, and currently is Vice President and Chair of the Education Committee of Florida Society of Pathologists. He spent a tremendous amount of time promoting Sino-America pathology education, research and practice. In the year of 2014-2015, he served as CAPA president, and he made outstanding contributions to our own community by setting numerous milestones in CAPA history.

### The CAPA/Zu-Hua Gao Outstanding Service Award

**Dr. Lizhen Gu** is the winner of this traditional award. Dr. Gu is a staff pathologist at Northwest Arkansas Pathology Associates. Dr. Gu initiated the Duotou Microscope WeChat group in 2014. Since then, she has successfully managed the Duotou WeChat group which now has 575 active members and serves as a popular online community the Chinese pathologists in North America. Dr. Gu served as a member of the CAPA Executive Committee and chaired the CAPA Membership Committee for the past two years. In the last three years, she has made major contributions to CAPA in recruiting new members, managing membership database, being in charge of the registrations of our annual meetings, the 1st and 2nd CAPA pathology courses, organizing CAPA annual dinners and the dinners during both pathology courses, etc. We thank Dr. Gu for her outstanding dedications to CAPA! Congratulations to Dr. Gu!



**The CAPA Member of the Year Award:** This award was created in 2015 to recognize the CAPA members who have gone above and beyond to help CAPA achieve its ambitious goals. Without their passion, talent, effort, and dedication to this community, these challenging goals would have not been accomplished.

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# KOPANA 2018

## Vancouver, CANADA



# Summary

- Neuroendocrine neoplasms of GI and pancreas
  - Mitosis and/or Ki-67 index are important but still limitation of interobserver variability/reproducibility
  - Manual count in printed photo may be practical (cost-effective)
  - WD neuroendocrine tumor may show G3
  - IHC panel: p53, Rb, DAXX, ATRX
  - Molecular profiles of WD vs. PD PanNEC are different

# ***Thanks for Attention!***

