

Less May Be More

When to Choose to Report at the Competent-Level Patterns

8th ICAP Workshop

17th Dresden Symposium on Autoantibodies

Dresden, 8. September, 2025



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CONFLICT OF INTEREST

**Medical consultant in Immunology and Rheumatology at Fleury
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Conselho Federal de Medicina (CFM [1.595/00 de 18/05/2000](#))

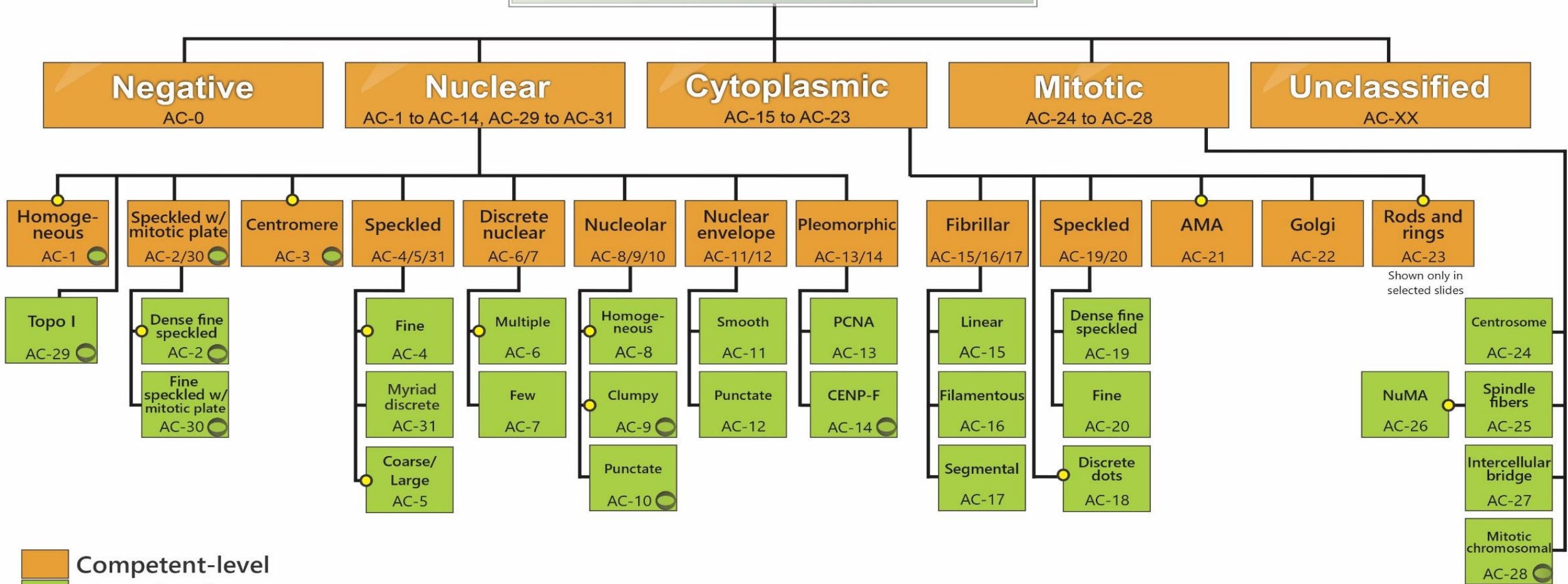
Agência Nacional de Vigilância Sanitária (ANVISA [120/2000 de 30/11/2000](#))

Aim of the presentation

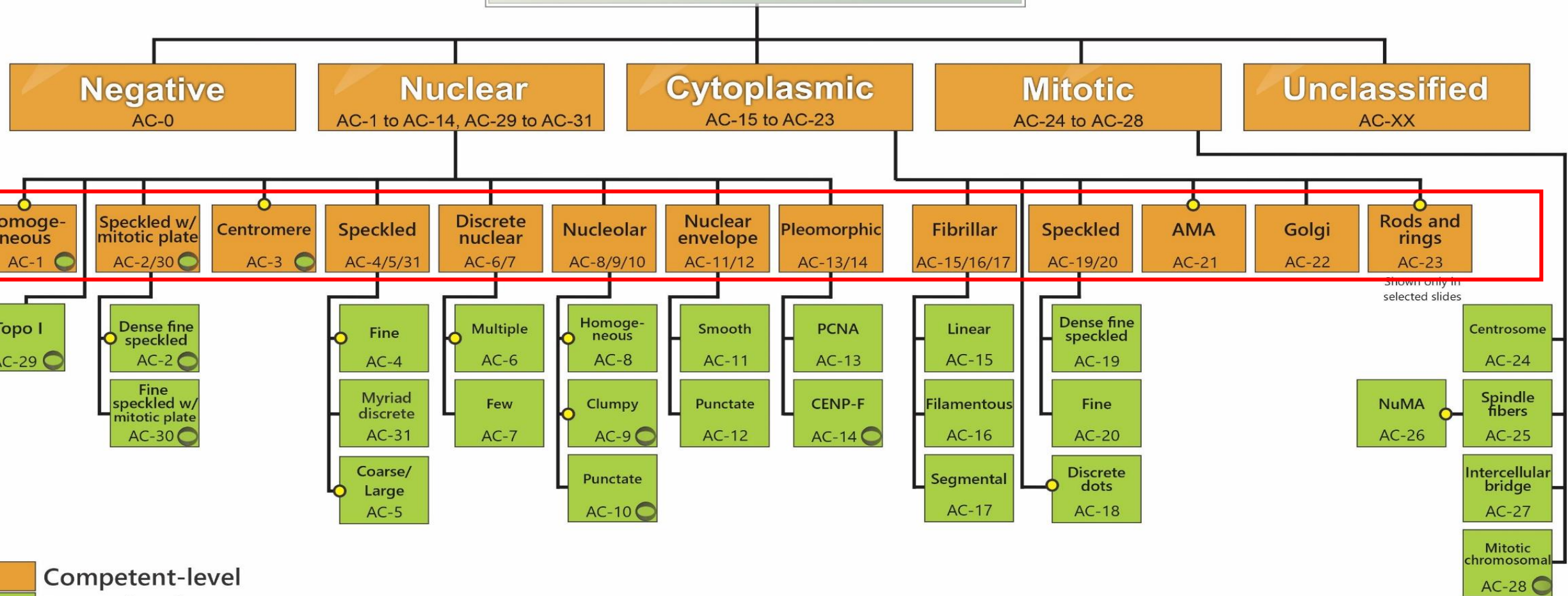
Reevaluate the terms

Competent-level and Expert-level patterns

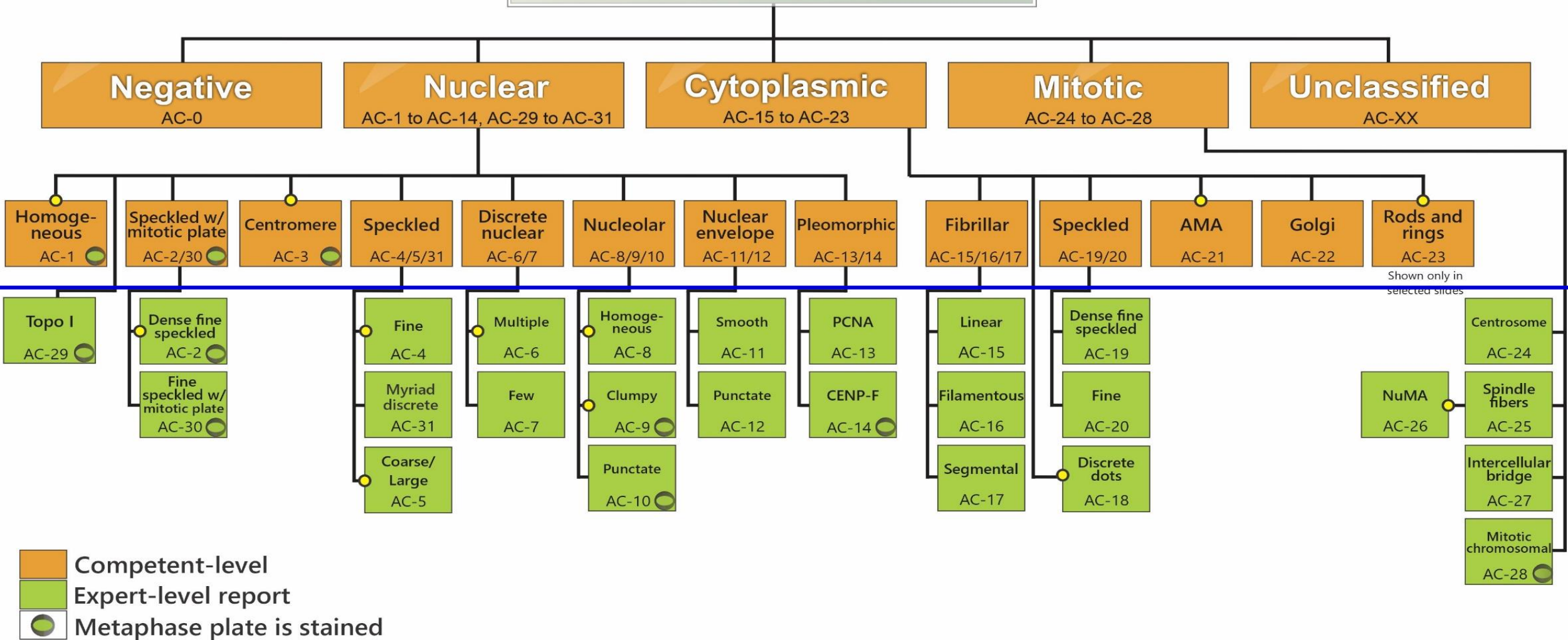
Hep-2 cell patterns



Hep-2 cell patterns

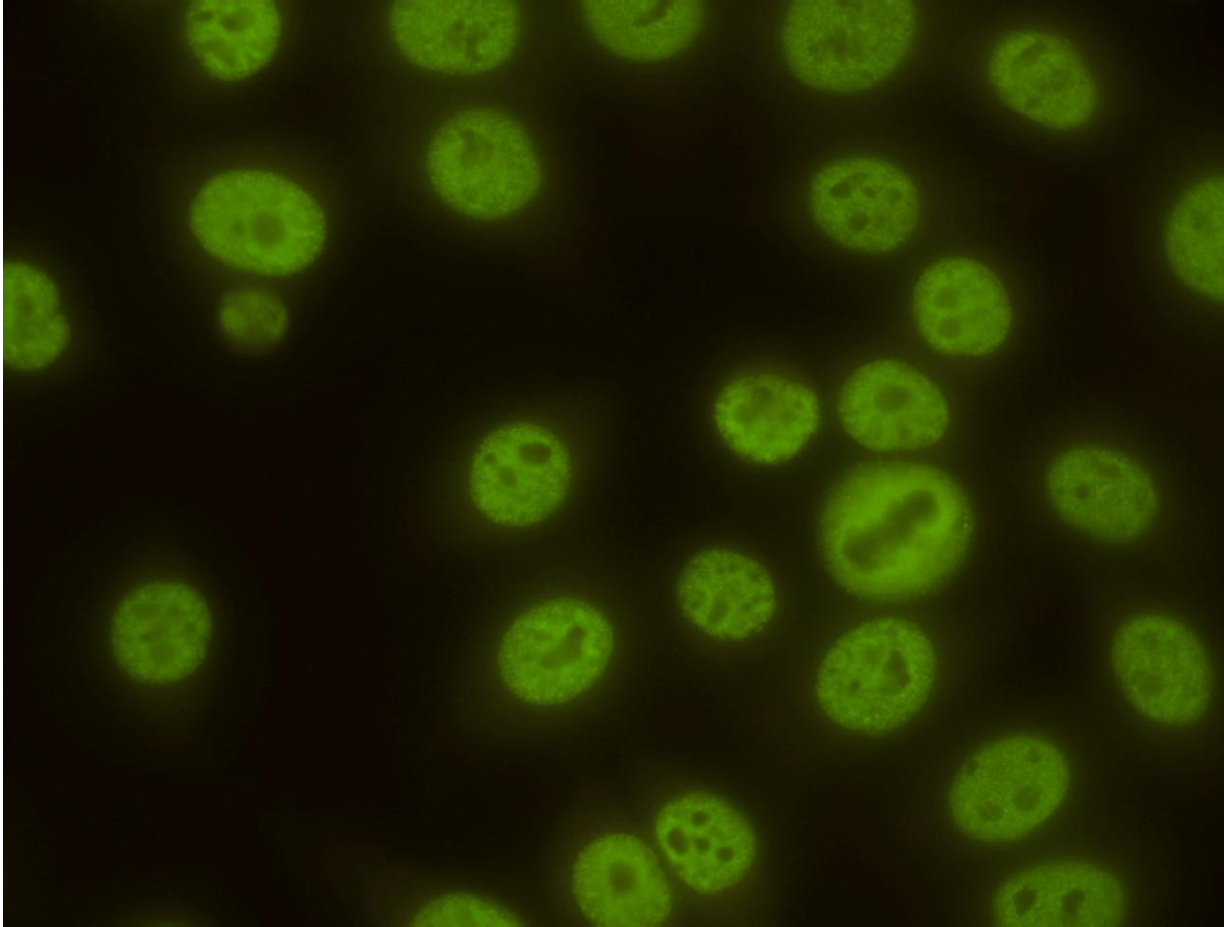


Hep-2 cell patterns

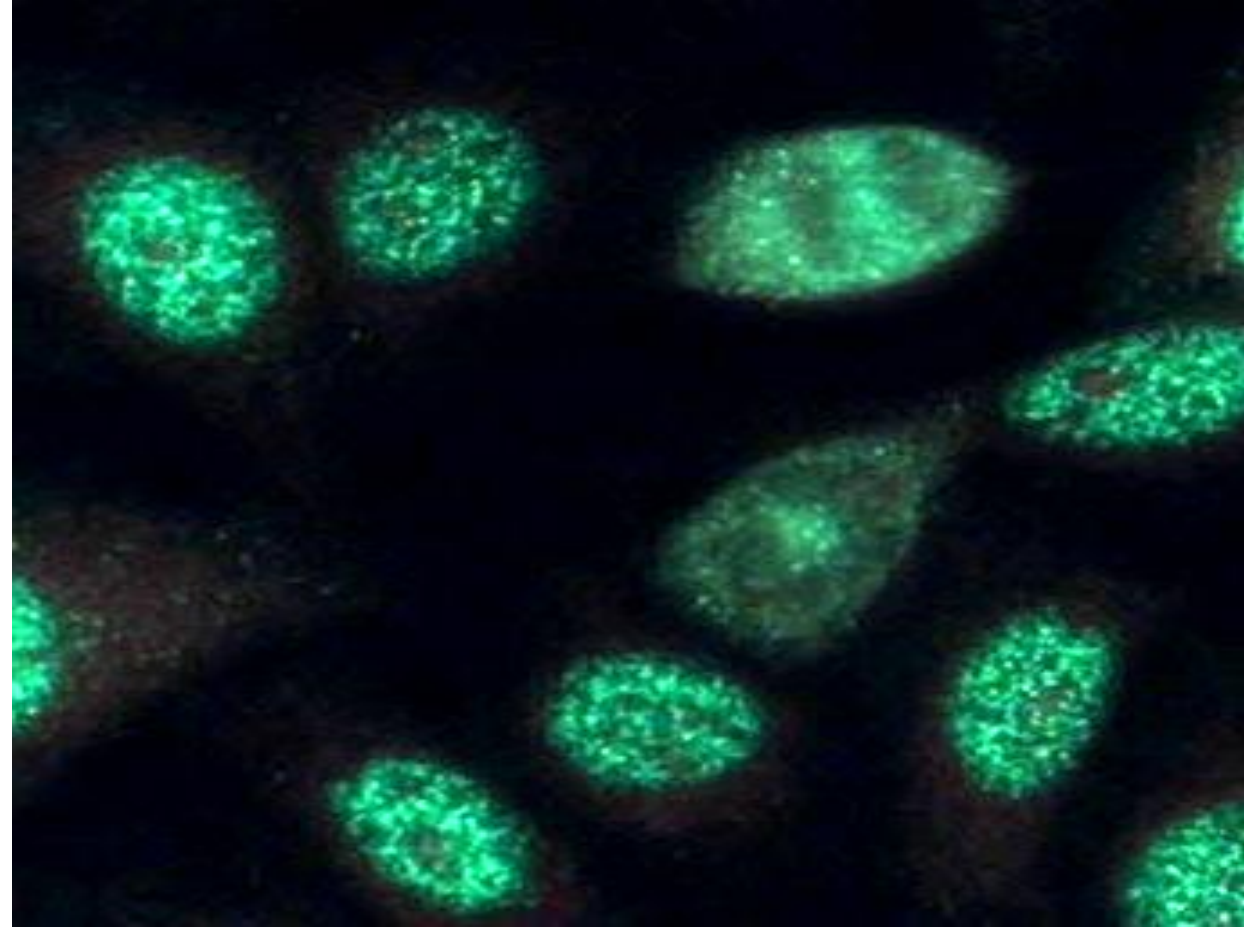


Competent versus Expert-level patterns

AC-4



AC-31



Autoantibody associations of AC-4 and AC-31

AC-4

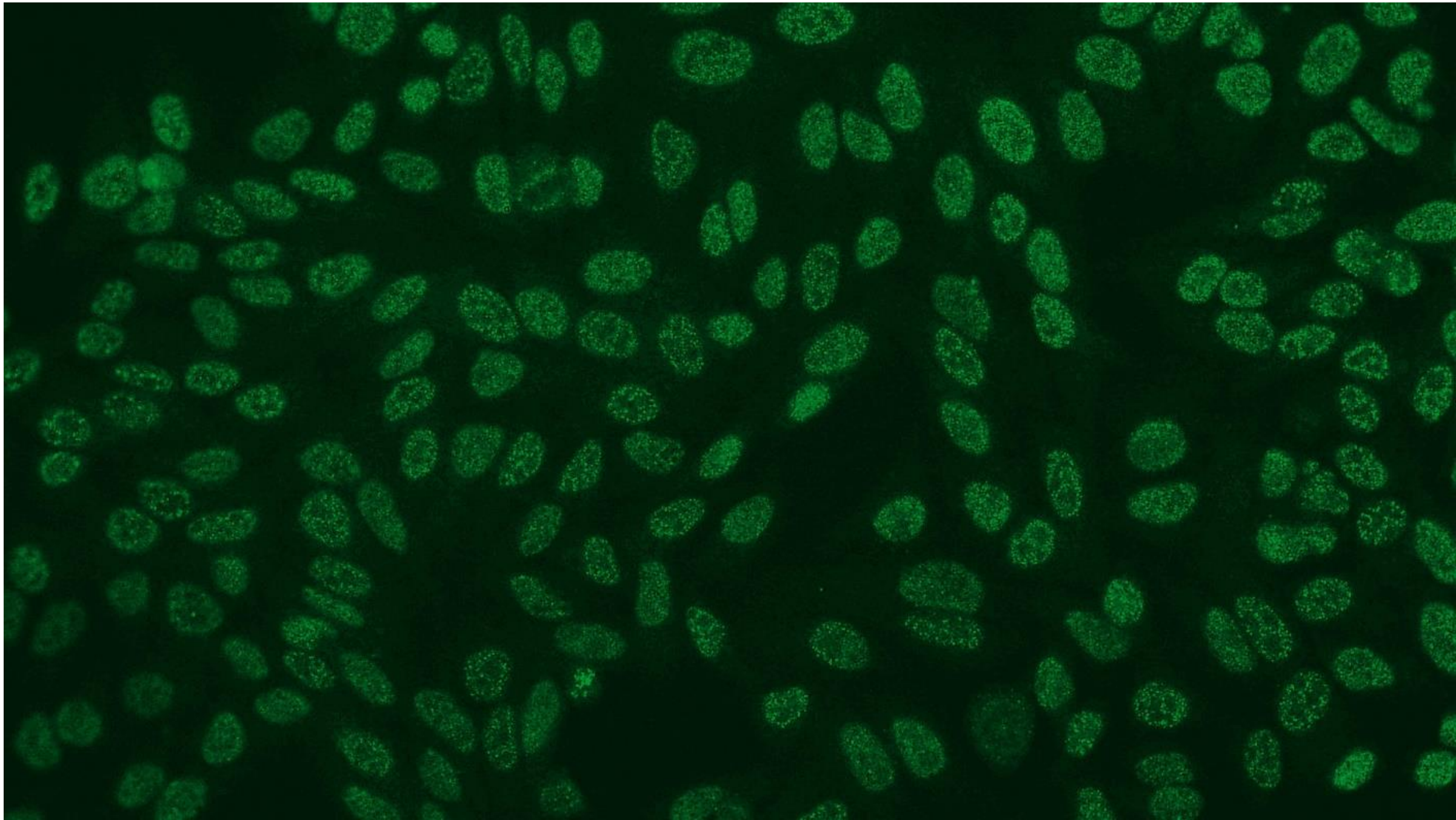
- TROVE2/Ro60 (SS-A/Ro60)
- SS-B/La
- Mi-2
- TIF1γ
- TIF1α

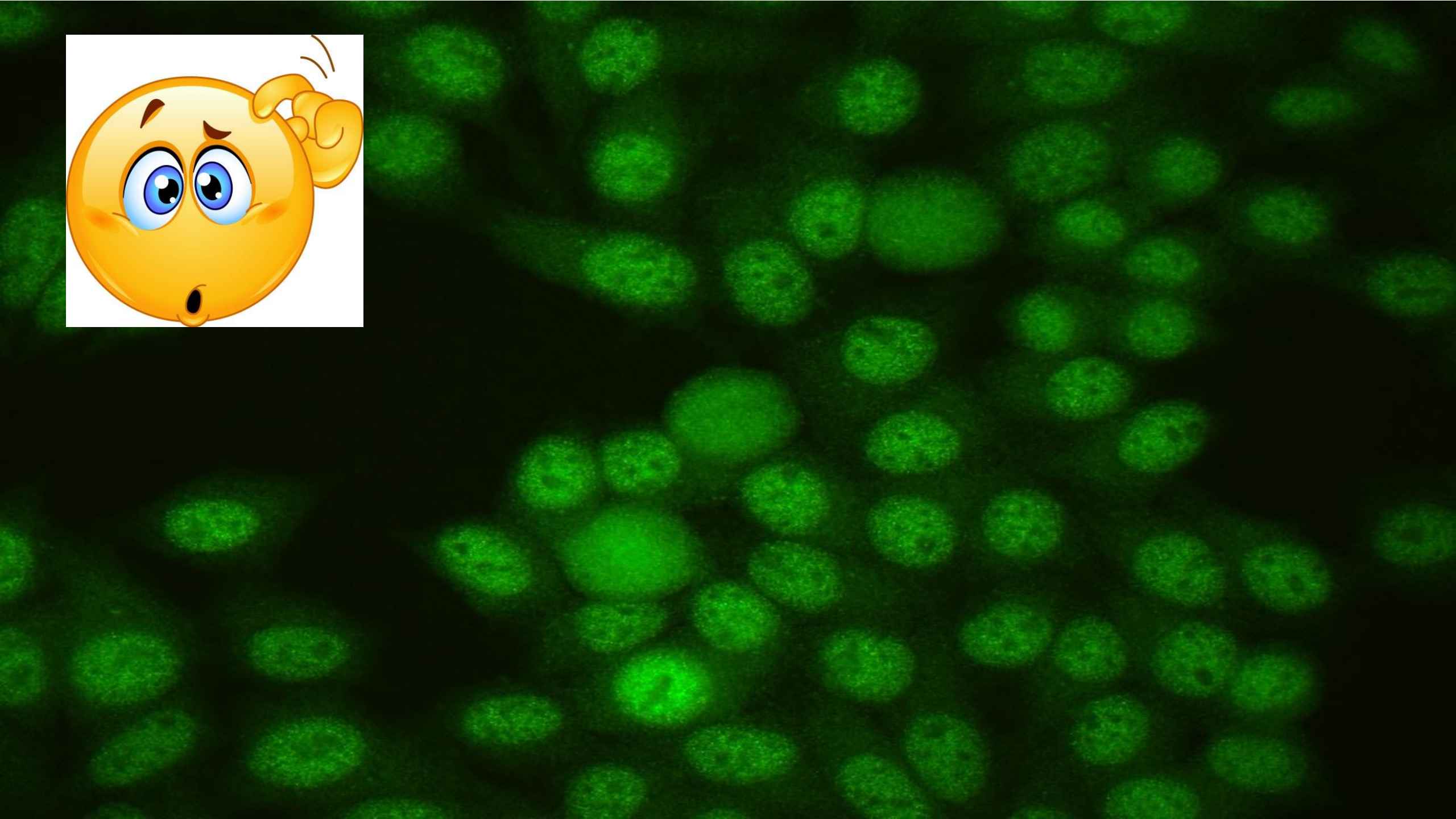
Most frequently, NONE

AC-31

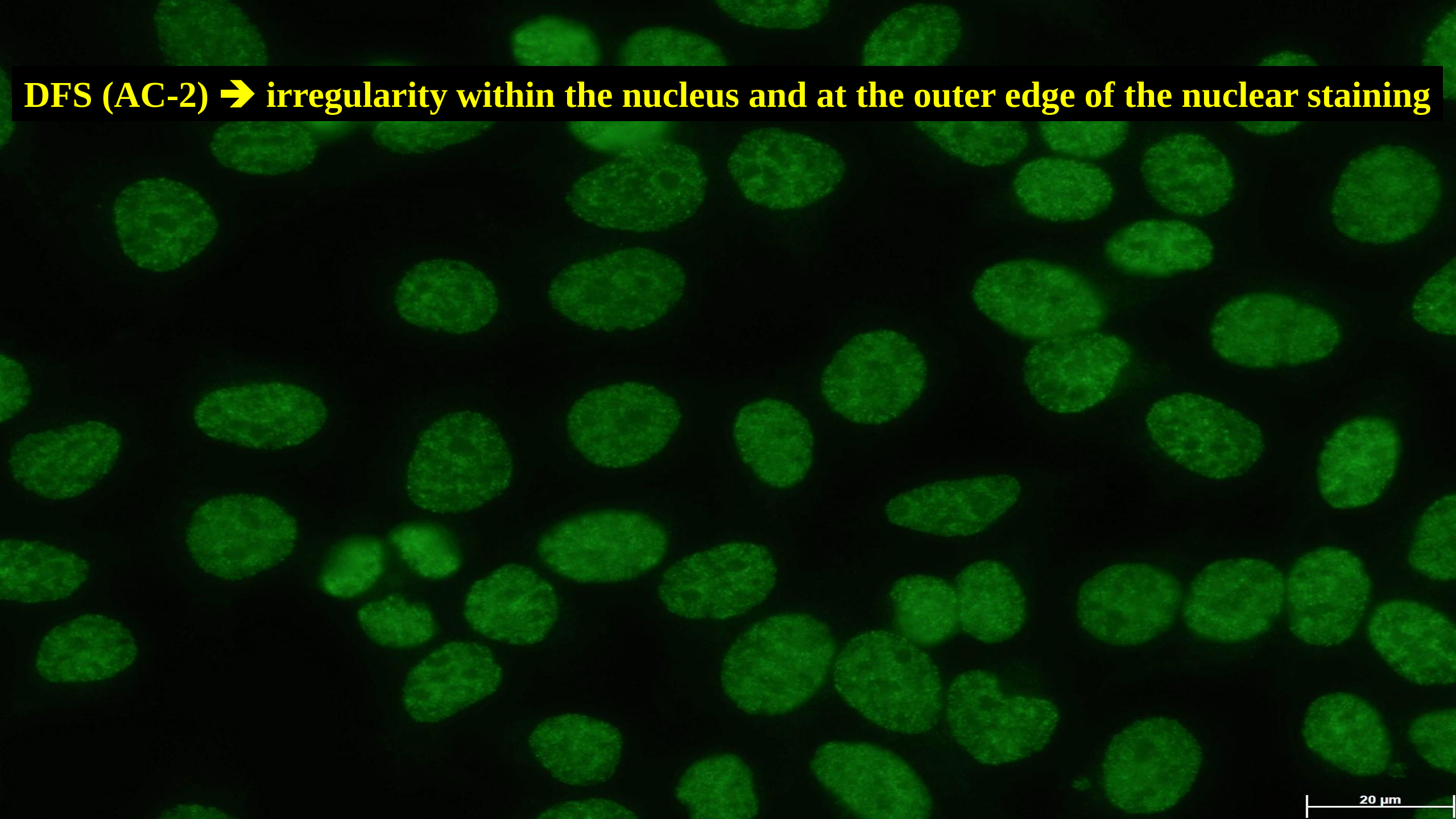
- TROVE2/Ro60 (SS-A/Ro60)
- With or without SS-B/La

Seldom anti-TROVE2-negative



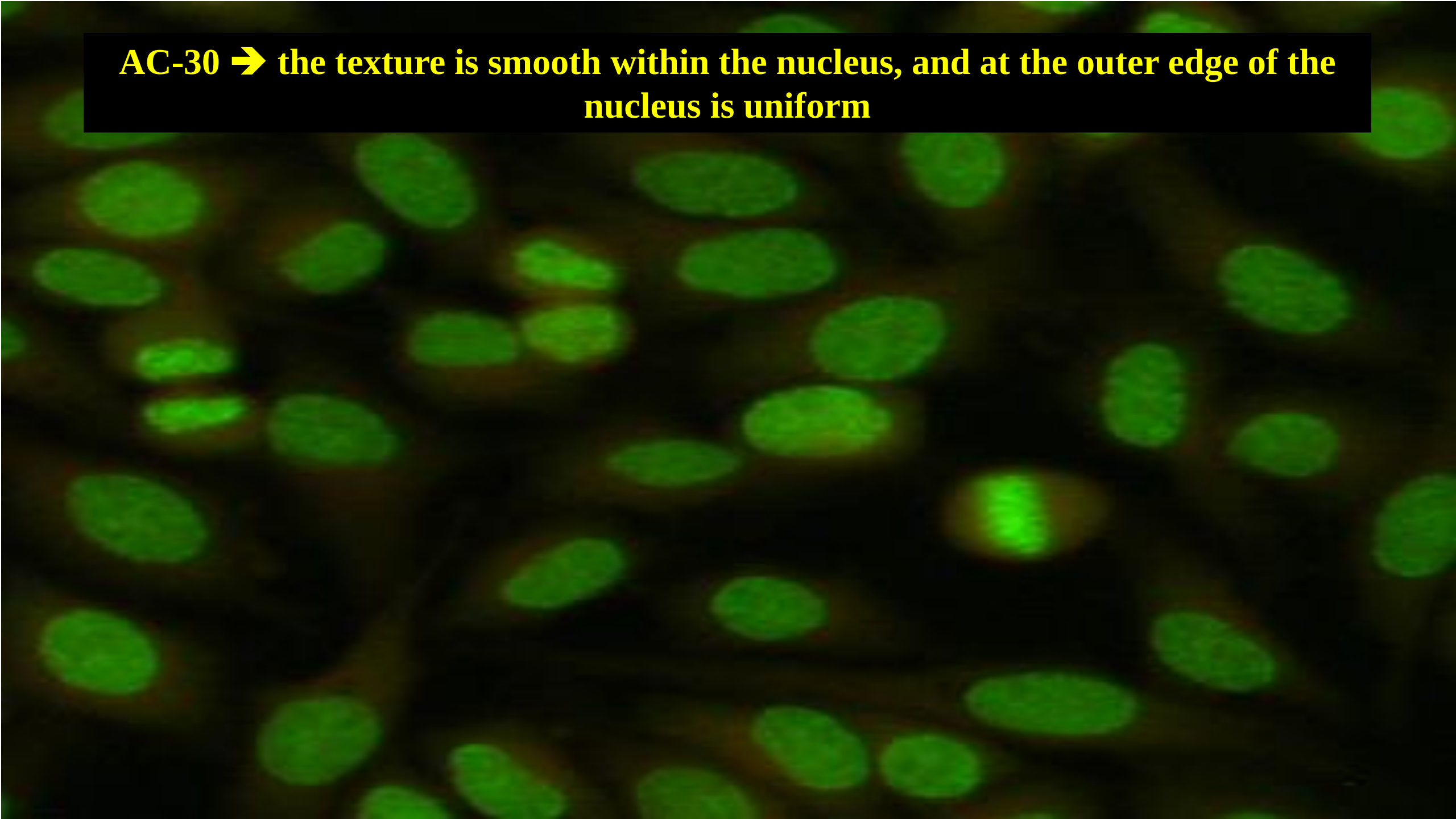


DFS (AC-2) → irregularity within the nucleus and at the outer edge of the nuclear staining



20 μ m

AC-30 → the texture is smooth within the nucleus, and at the outer edge of the nucleus is uniform



Autoantibody associations of AC-2 and AC-30

AC-30

- dsDNA
 - Nucleosome
 - Histones
 - Sm/U1
 - TSS/ Ro60
- Some of these autoantibodies

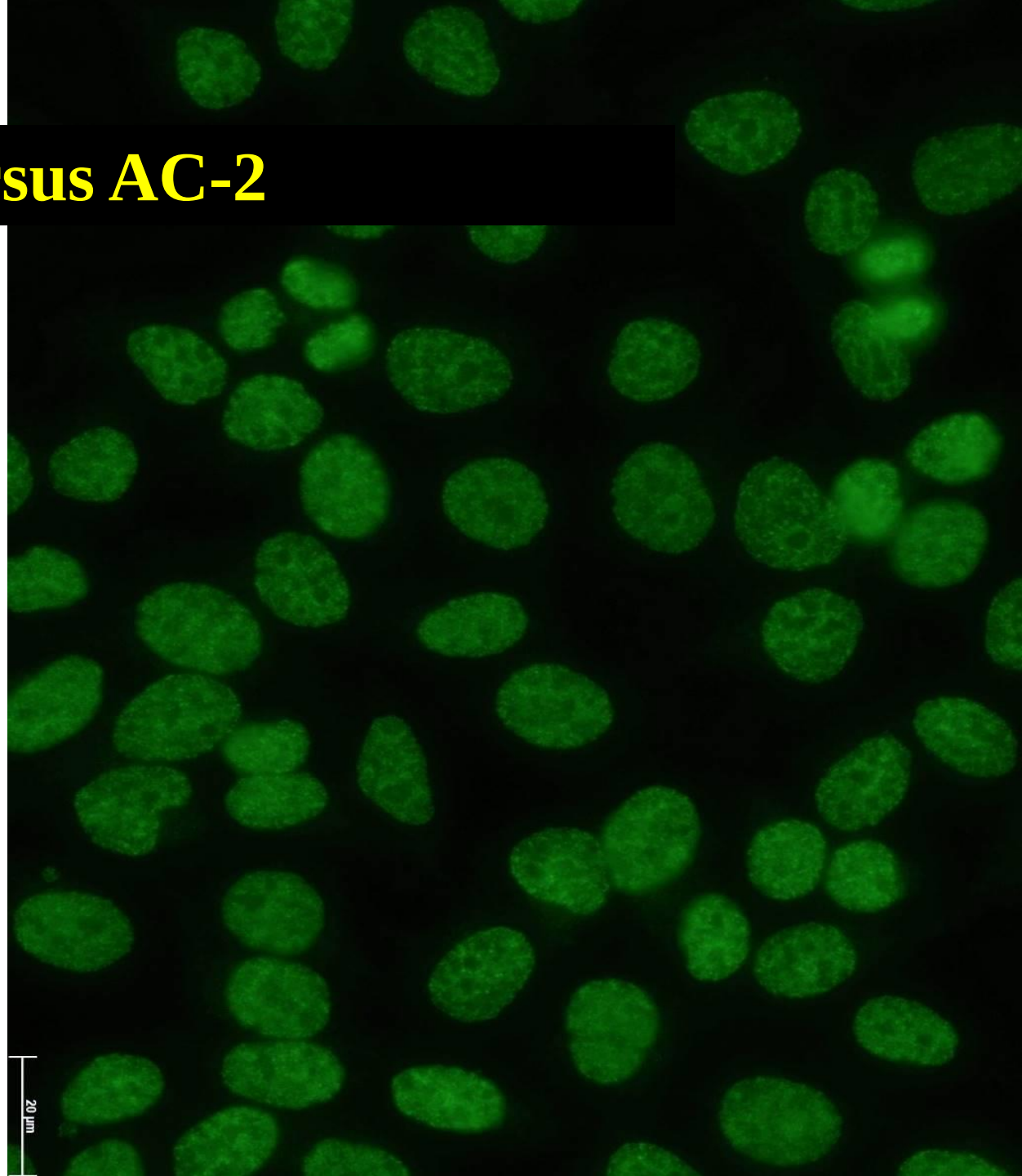
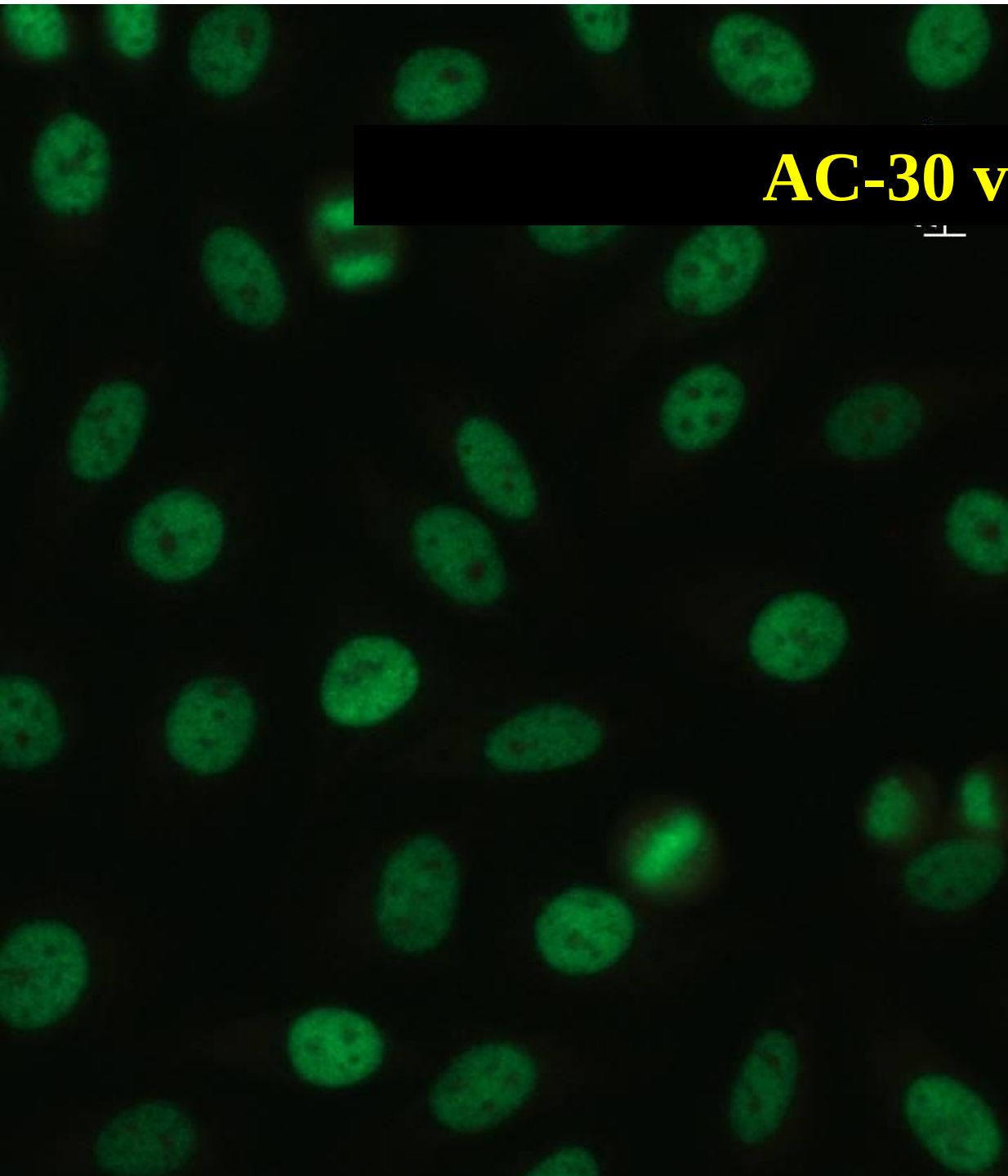
Most frequently, NONE

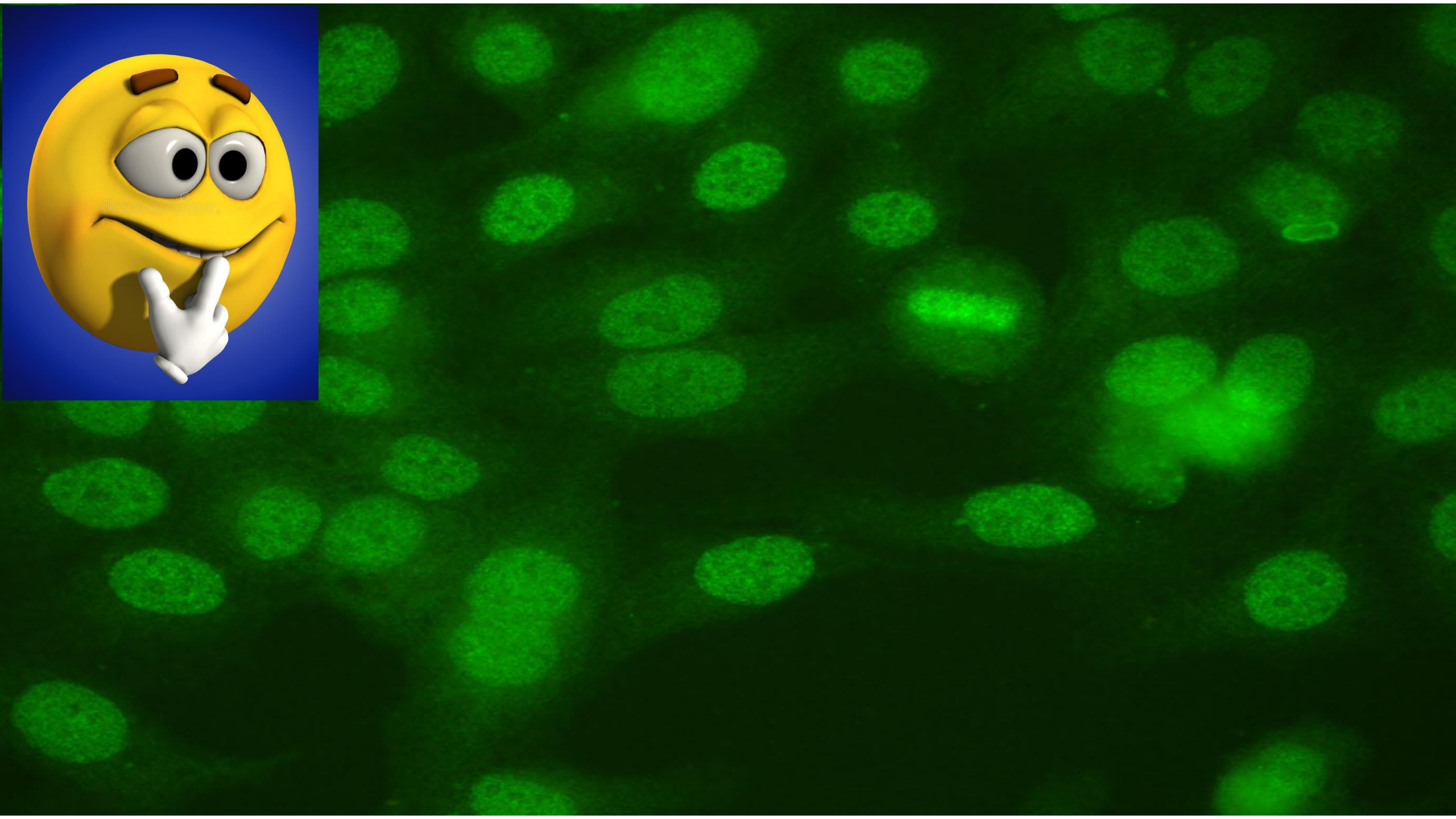
AC-2

- DFS70 (LEDGF-p75)

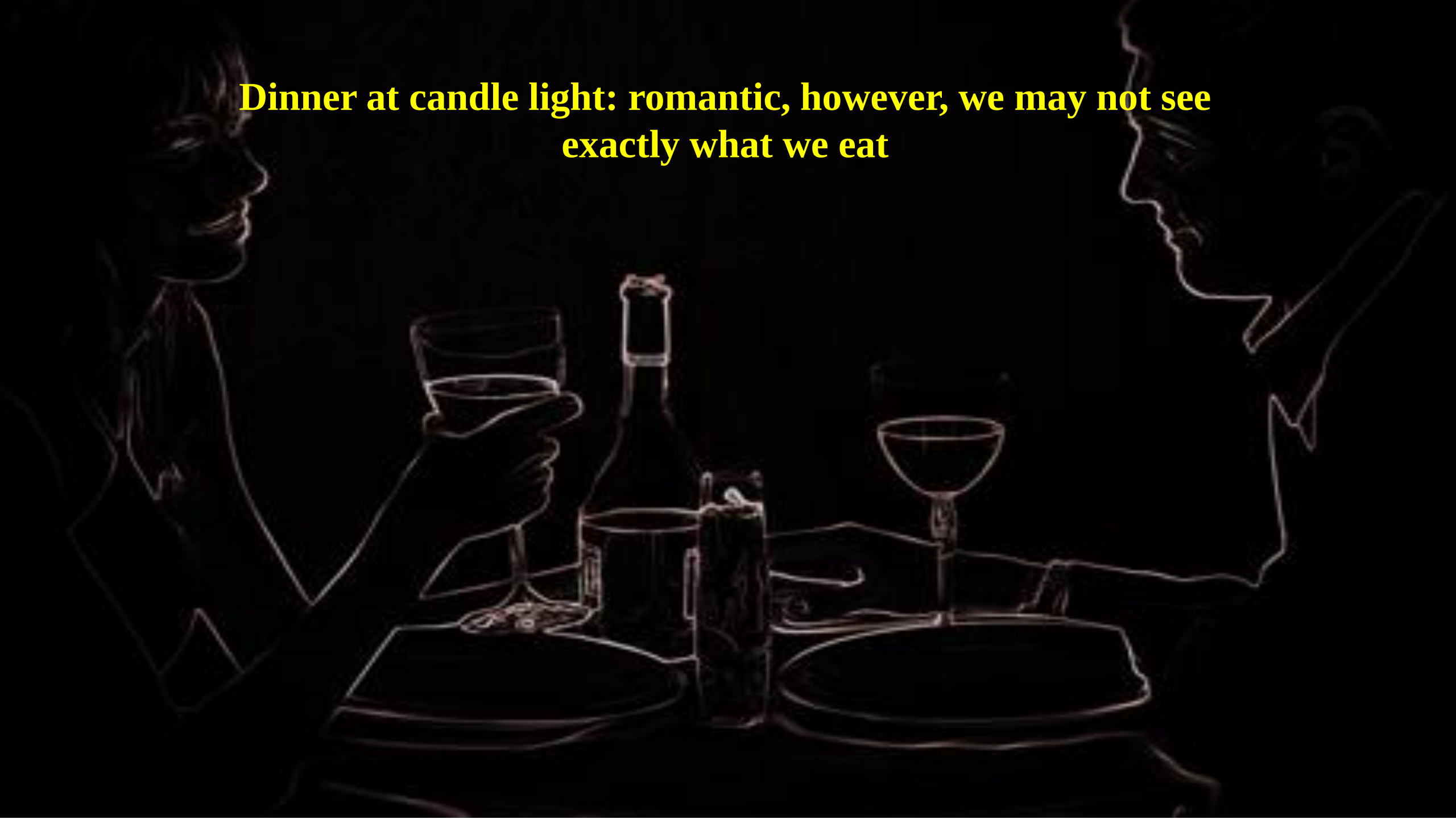
Seldom anti-DFS70-negative

AC-30 versus AC-2





Dinner at candle light: romantic, however, we may not see exactly what we eat



Can low titer samples elicit poorly defined images not clear enough to allow correct definition of the pattern?

12 samples with well-defined AC patterns were tested to determine the end-titer

Homogeneous (AC-1) pattern → n=2

DFS (AC-2) pattern → n=2

Centromere (AC-3) pattern → n=2

Nuclear Coarse Speckled (AC-5) pattern → n=3

AMA-like (AC-21) pattern → n=2

NuMA-like (AC-26) pattern → n=1

Can low titer samples elicit poorly defined images not clear enough to allow correct definition of the pattern?

Aliquots at the lowest dilution (e.g. 1/160) and the second to last positive dilution (e.g. 1/10,240) were scrambled, blinded and tested so that examiners did not know the distribution and nature of samples

- ✓ Eight well-trained blinded analysts independently read the slides
- ✓ Reproducibility of each pattern at low dilution (high concentration antibody) versus at high dilution (low concentration antibody)

Low titer AC-1 samples may be wrongly classified

NUCLEAR HOMOGENEOUS – AC-1				
	Dilution	Correct	Erroneous	
Sample 1	1/160	8	0	
	1/10,240	6	2	AC-30
Sample 2	1/160	8	0	
	1/20,480	4	4	AC-30

AC-30: Nuclear Fine Speckled with metaphase plate stained

Andrade et al, unpublished

Low titer AC-2 samples may be wrongly classified

NUCLEAR DENSE FINE SPECKLED – AC-2				
	Dilution	Correct	Erroneous	
Sample 1	1/80	8	0	
	1/640	2	6	AC-30
Sample 2	1/320	8	0	
	1/10,240	3	5	AC-30

AC-30: Nuclear Fine Speckled with metaphase plate stained

Andrade et al, unpublished

Even at low titer, AC-3 samples are correctly classified

CENTROMERE – AC-3				
	Dilution	Correct	Erroneous	
Sample 1	1/80	8	0	
	1/320	8	0	
Sample 2	1/160	8	0	
	1/20,480	8	0	

Low titer AC-5 samples may be wrongly classified

NUCLEAR COARSE SPECKLED – AC-5				
	Dilution	Correct	Erroneous	
Sample 1	1/640	8	0	
	1/10,240	5	3	AC-4 + AC-7
Sample 2	1/640	8	0	
	1/10,240	2	6	AC-4 + AC-7

AC-4: Nuclear Simple Fine Speckled / AC-7: few discrete nuclear speckles

Andrade et al, unpublished

Even at low titer, AC-21 samples are correctly classified

CYTOPLASMIC RETICULAR (AMA-like) – AC-21				
	Dilution	Correct	Erroneous	
Sample 1	1/160	8	0	
	1/81,920	8	0	
Sample 2	1/80	8	0	
	1/640	8	0	

Even at low titer, AC-26 samples are correctly classified

NuMA-like – AC-26				
	Dilution	Correct	Erroneous	
Sample 1	1/80	8	0	
	1/1,280	8	0	

Some AC patterns may be wrongly classified in low titer samples

Homogeneous (AC-1) → may be assigned as nuclear FSp with stained MP (AC-30)

DFS (AC-2) → may be assigned as nuclear FSp with stained MP (AC-30)

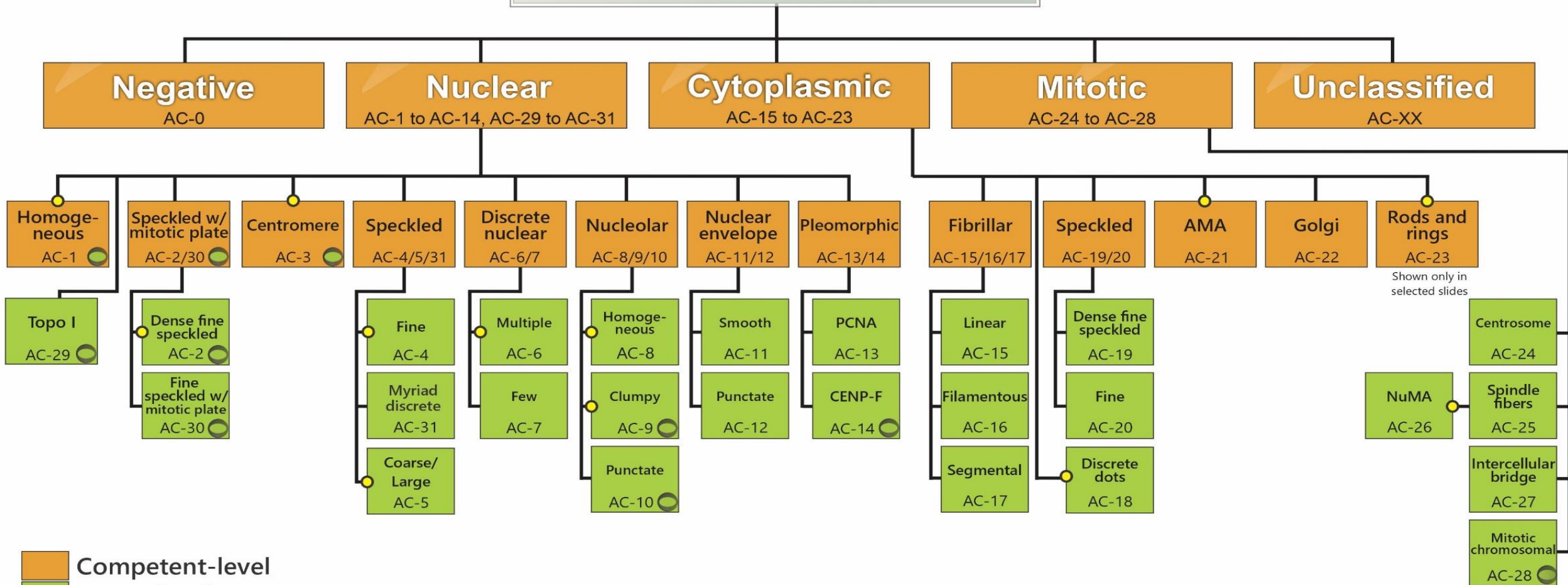
Nuclear Coarse Speckled (AC-5) → may be assigned as AC-4 + AC-7

Centromere (AC-3) → very robust!

AMA-like (AC-21) → very robust!

NuMA-like (AC-26) → very robust!

HEp-2 cell patterns

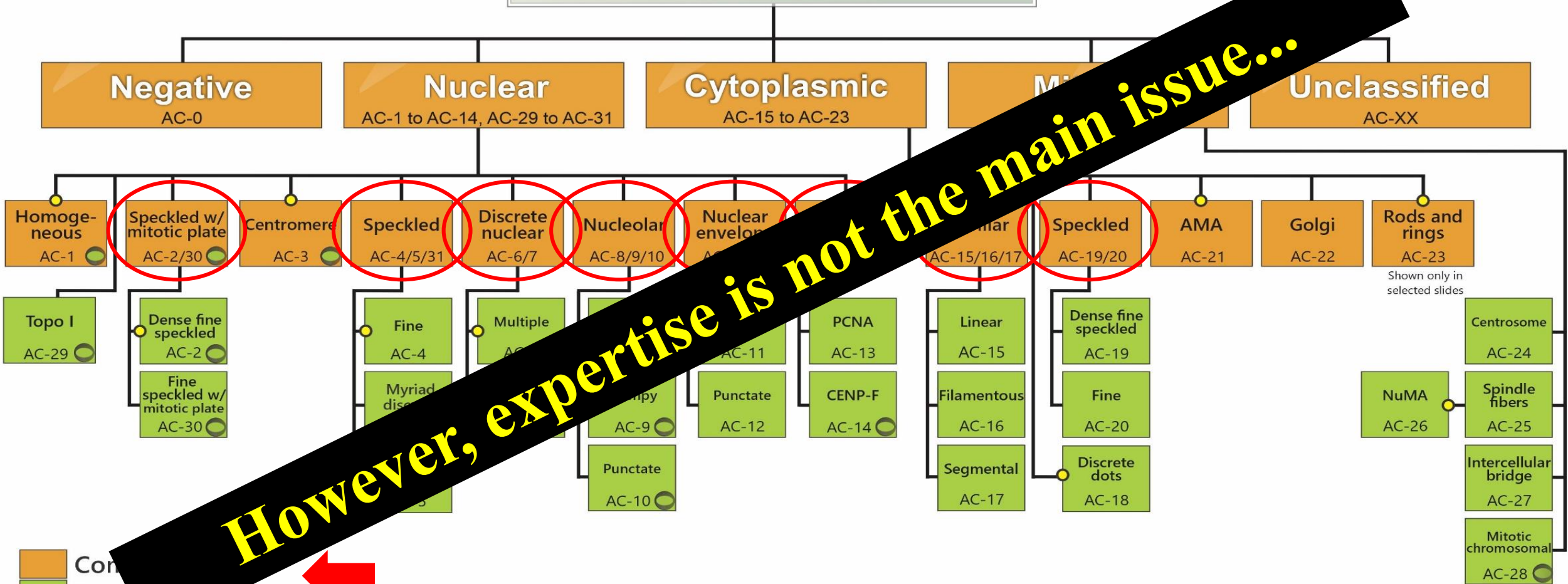




740-625 **625-590** **590-565** **565-520** **520-500** **500-435** **435-380**

Wavelength (nm)

Hep-2 cell patterns

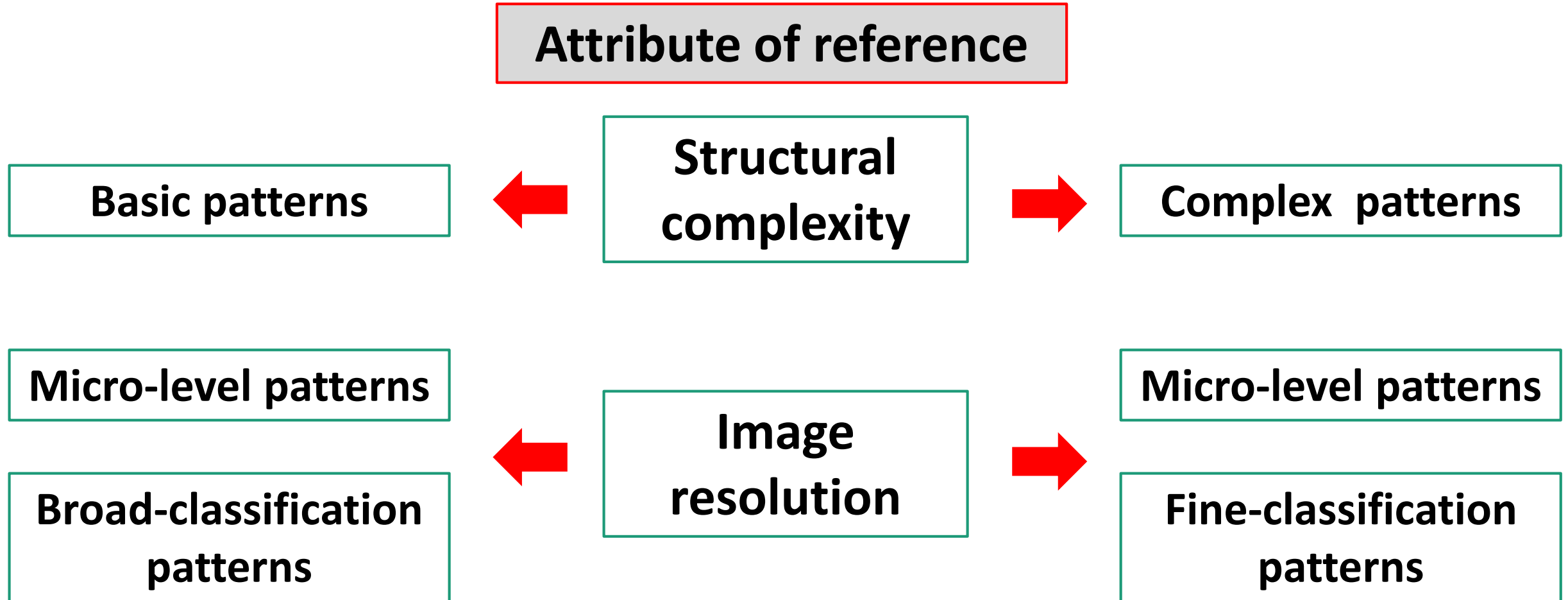


- Con
- Expert report
- Metaphase plate is stained

Referece materials available at www.AutoAb.org

*Classification tree updated February 2024

Possible alternative designations for competent/expert-level patterns



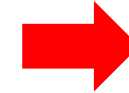
Possible alternative designations for competent/expert-level patterns

Attribute of reference

**Well-defined
patterns**



Pattern clarity



Subtle patterns

**Simple-morphology
patterns**



**Visual
complexity**

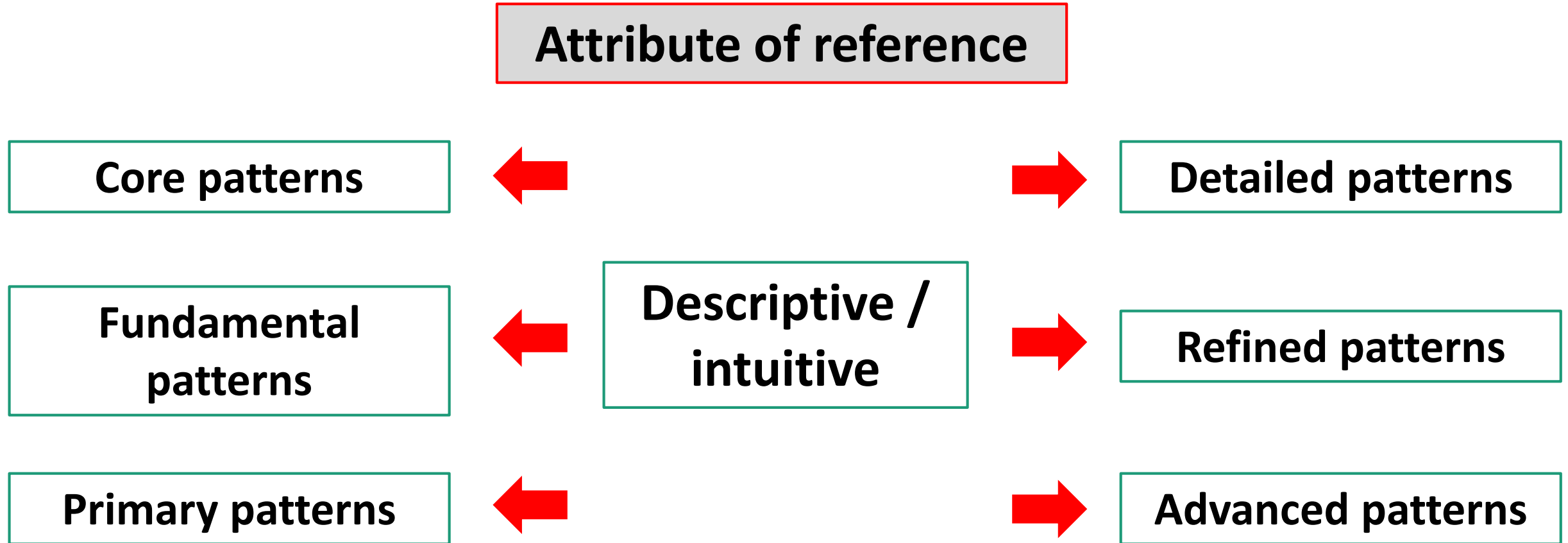


**Complex-morphology
patterns**

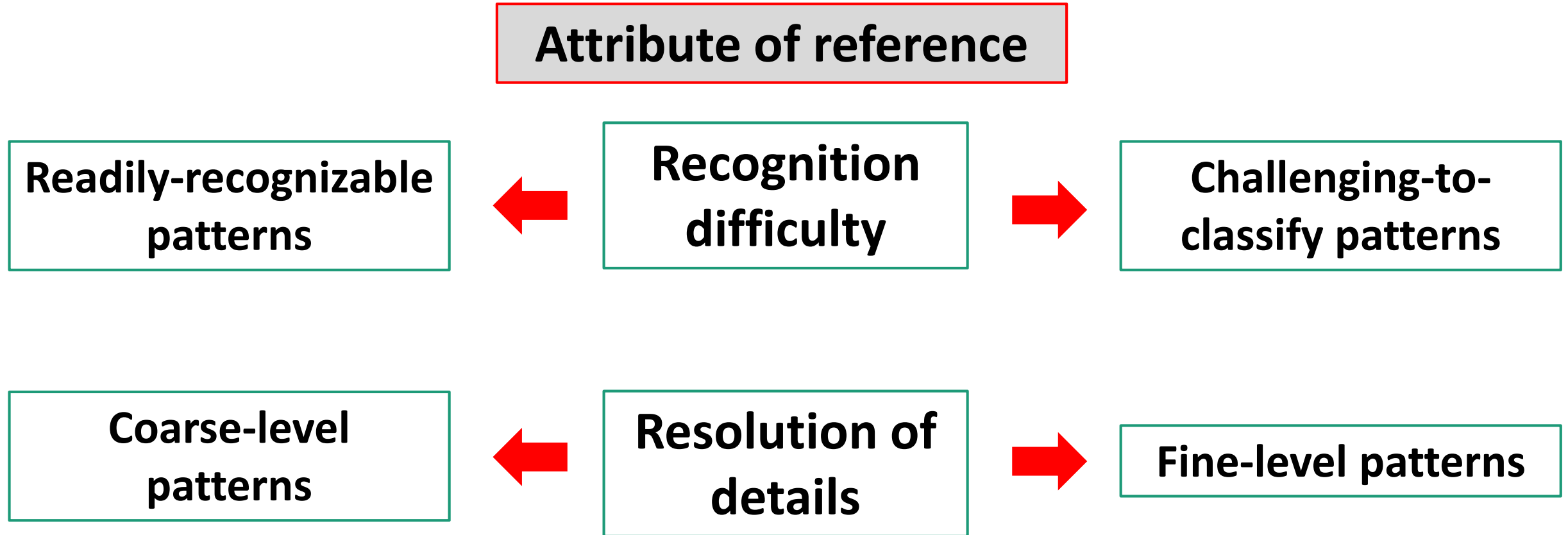
**Straight-morphology
patterns**

Subtle patterns

Possible alternative designations for competent/expert-level patterns



Possible alternative designations for competent/expert-level patterns



Could we work out a terminology for these two levels of patterns that avoids placing too much emphasis on the analyst's expertise?

Thanks for your attention!

It is great to see you all!

