

Highlights on the new classification tree, new patterns, and edited information AC-0 to AC-14

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Professor Emeritus



Chair, IUIS Autoantibody Standardization Committee: www.autoab.org
ICAP co-coordinator (with Luis E.C. Andrade): www.ANApatterns.org

Development of the ANApatterns.org website



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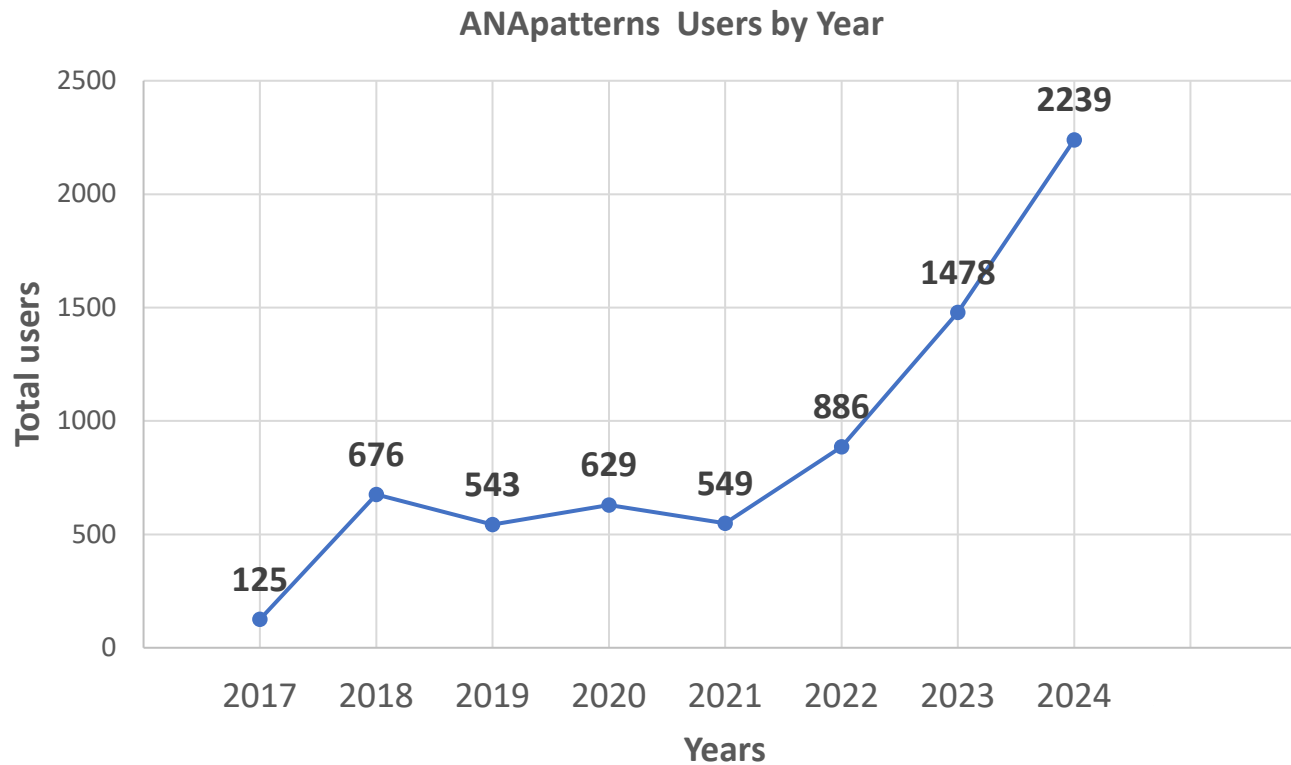
日本語

ไทย

Українська

Welcome to ANApatterns.org, the official website for the International Consensus on Antinuclear Antibody (ANA) Patterns (ICAP). ICAP was initiated as a workshop aiming to thoroughly discuss and to promote consensus regarding the richness and nuances of morphological patterns observed in the indirect immunofluorescence assay on HEp-2 cells (HEp-2 IFA). The ICAP initiative was implemented at the 12th International Workshop on Autoantibodies and Autoimmunity (IWAA, São Paulo, Brazil) by members of the Autoantibody Standardization Committee (ASC), a subcommittee of the International Union of Immunological Societies (IUIS) Quality Assessment and Standardization Committee and affiliated with the Centers for Disease Control and Prevention (CDC). The ICAP committee is operating as an ASC sub-committee.

Number of registered users by year



Source: Anapatterns website (Survey in August 9,2025)

Recommendation

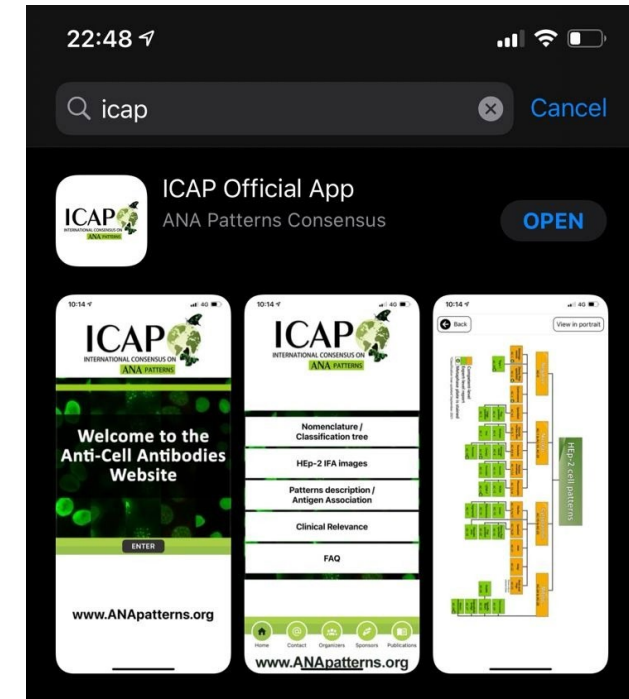


OPEN ACCESS

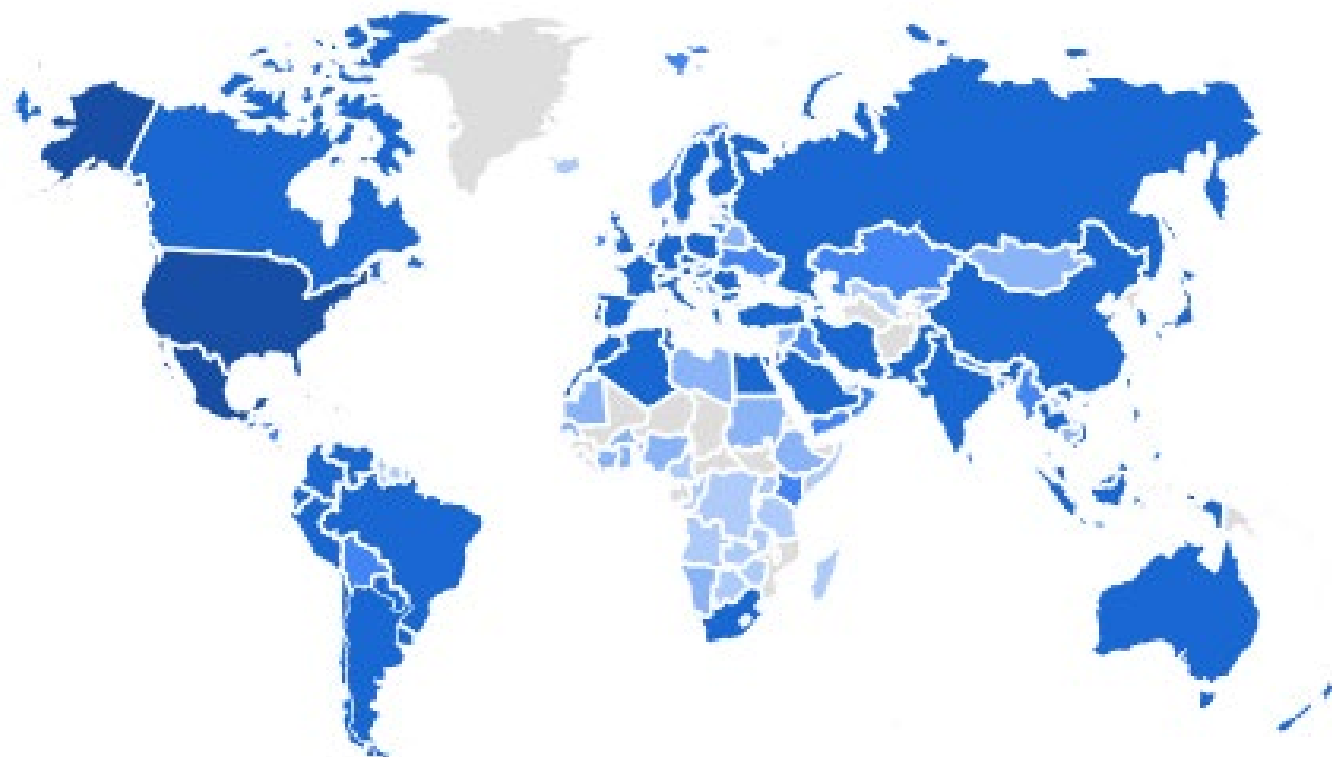
Clinical relevance of HEp-2 indirect immunofluorescent patterns: the International Consensus on ANA patterns (ICAP) perspective

Jan Damoiseaux,¹ Luis Eduardo Coelho Andrade,² Orlando Gabriel Carballo,^{3,4} Karsten Conrad,⁵ Paulo Luiz Carvalho Francescantonio,⁶ Marvin J Fritzler,⁷ Ignacio Garcia de la Torre,⁸ Manfred Herold,⁹ Werner Klotz,¹⁰ Wilson de Melo Cruvinel,¹¹ Tsuneyo Mimori,¹² Carlos von Muhlen,¹³ Minoru Satoh,¹⁴ Edward K Chan¹⁵

Ann Rheum Dis
2019; 78:879–89



Total visitors in 2025 (January 1 to August 6)

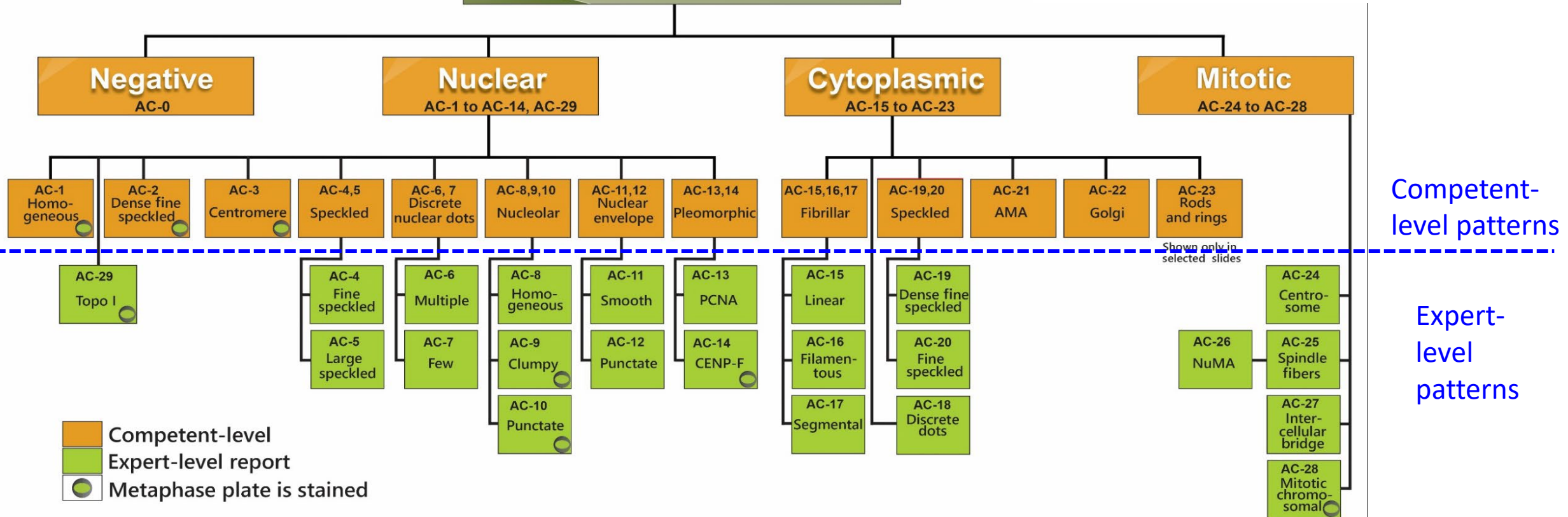


	Total	132 001 100% do total
1	United States	27 832 (21,08%)
2	Brazil	8 342 (6,32%)
3	Mexico	8 009 (6,07%)
4	Chile	7 346 (5,57%)
5	Spain	7 196 (5,45%)
6	Italy	7 102 (5,38%)
7	India	5 637 (4,27%)
8	Colombia	4 935 (3,74%)
9	Argentina	4 300 (3,26%)
10	Germany	4 221 (3,2%)

2024 Chart

HEp-2 cell patterns

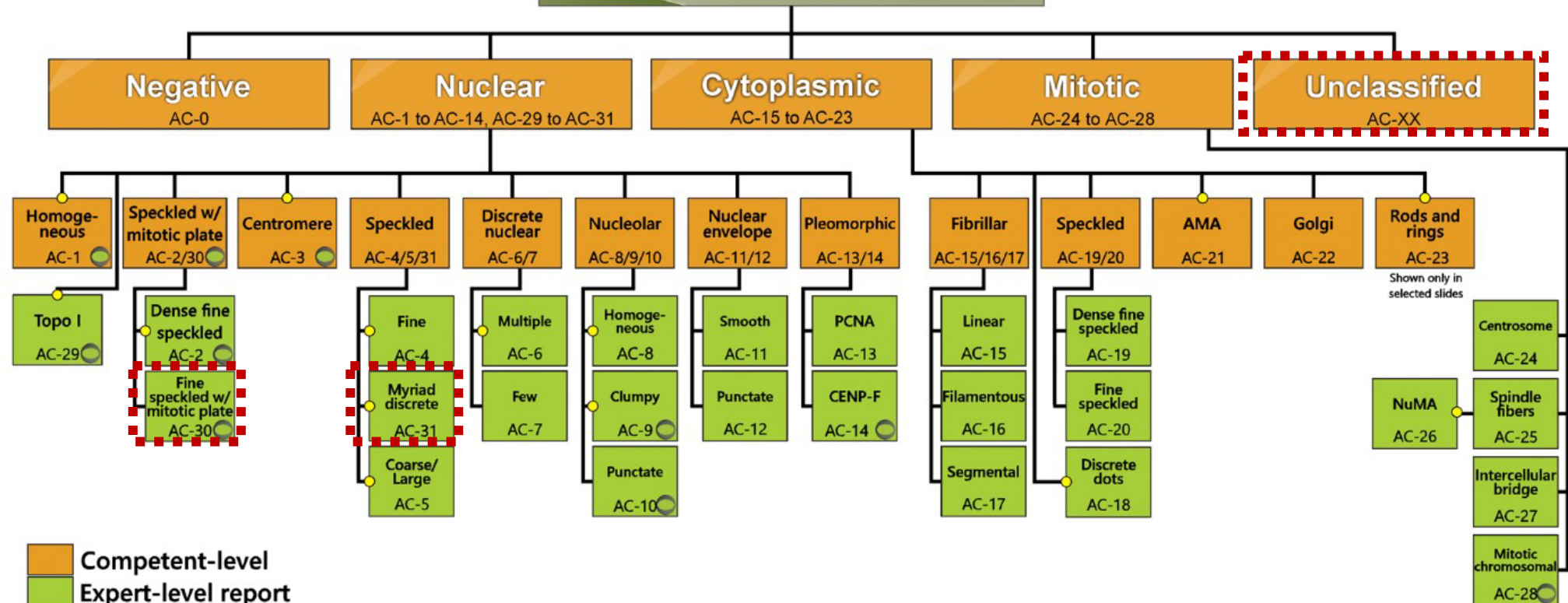
**29 patterns catalogued by
ICAP in addition to AC-0**



Feb 2025 Chart

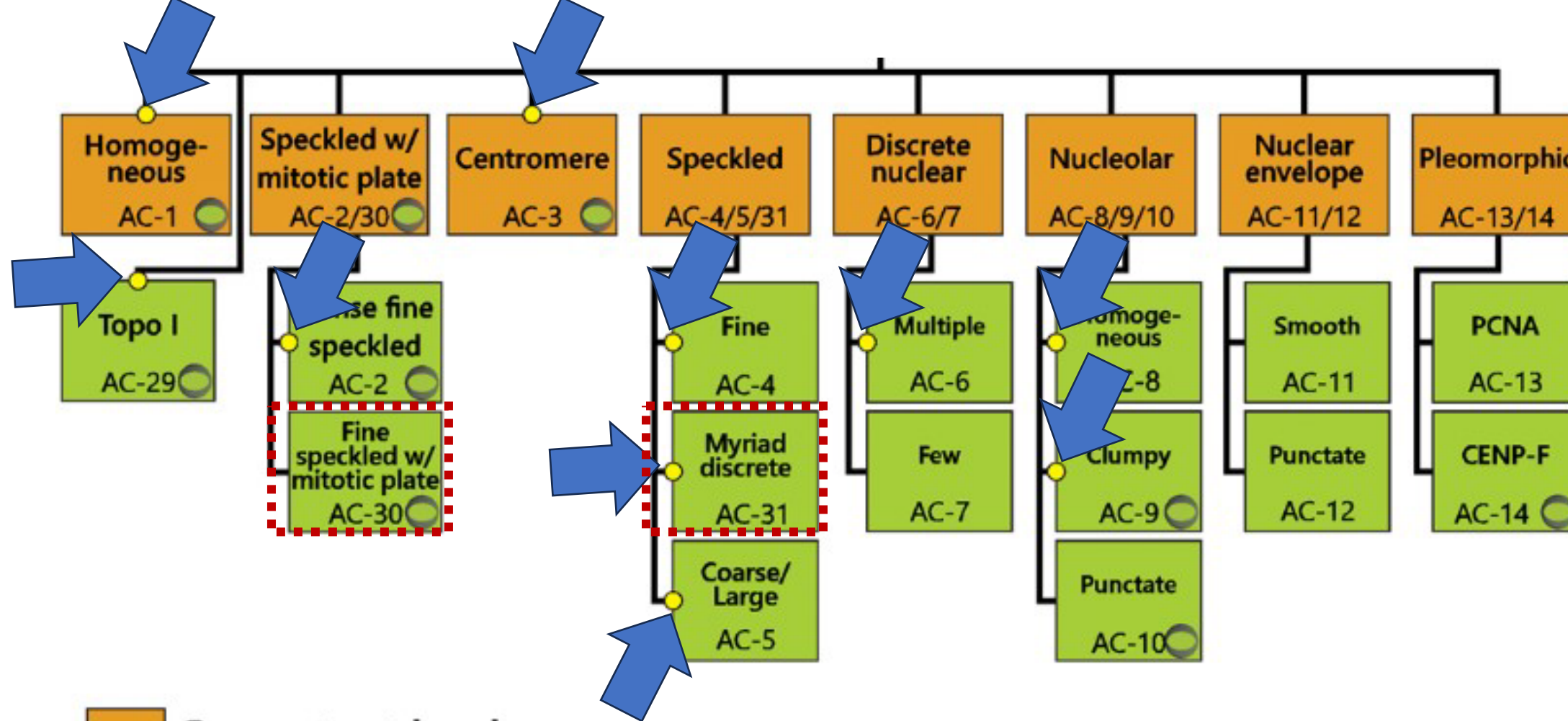
HEp-2 cell patterns

31 patterns catalogued by ICAP
in addition to AC-0 & AC-XX



*Classification tree updated February 2024

Werner
Klotz



Competent-level

Expert-level report

Metaphase plate is stained

Reference materials available at www.AutoAb.org

*Classification tree updated February 2024



**AC-30 - Fine
Nuclear Speckled
with Mitotic Plate**
– formerly pseudo-DFS

AC-30 - Fine Nuclear Speckled with Mitotic Plate

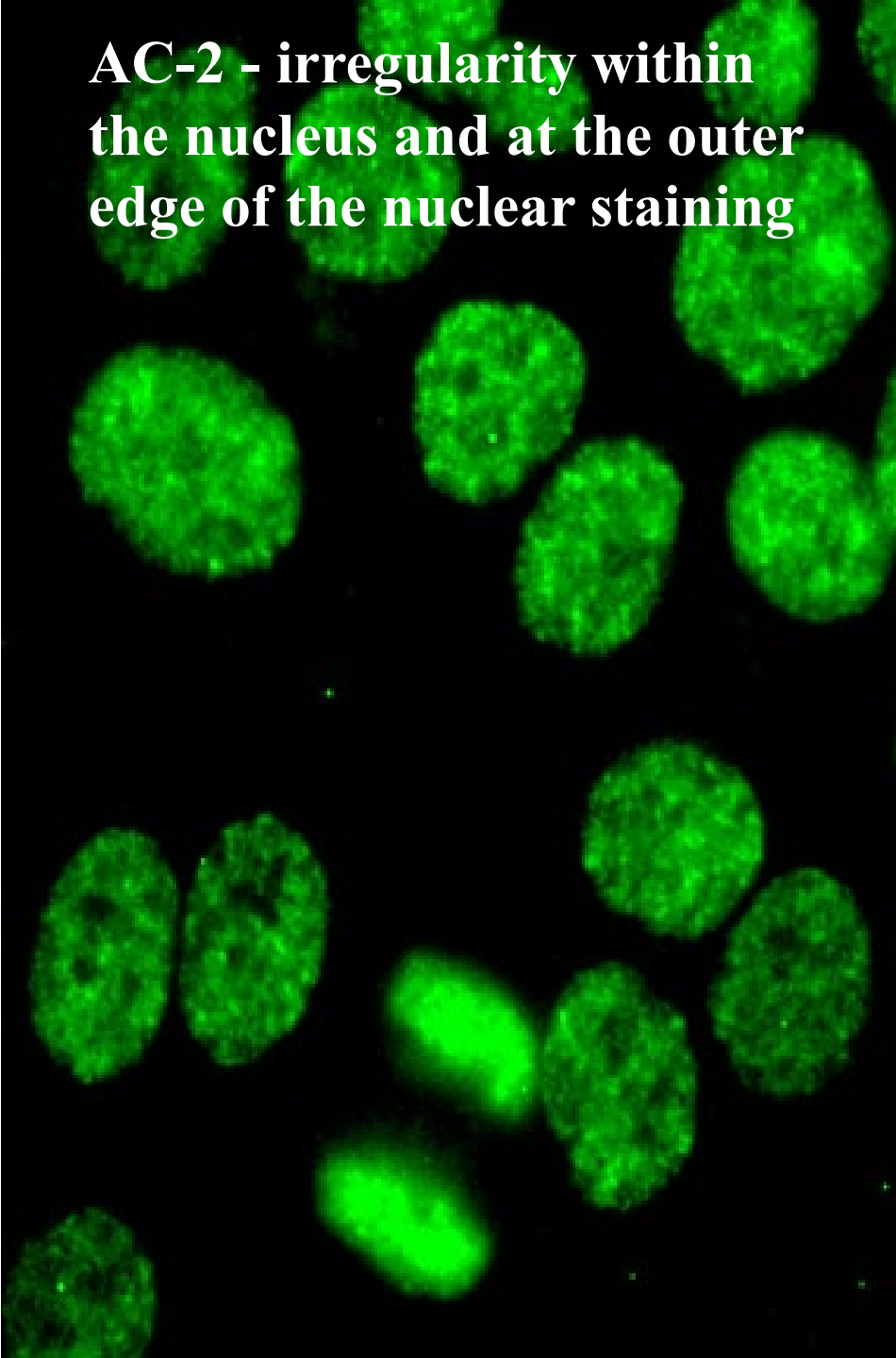
Previous Nomenclature	Pseudo-DFS [1]; Nuclear Speckled with Positive Metaphases; Nuclear Homogeneous Speckled; Nuclear Homo/Speckled.
Description	The speckled staining pattern is uniformly distributed throughout the interphase nucleus, exhibiting homogeneity in speckle size, brightness, and distribution. A similar speckled pattern is observed in the metaphase plate. Importantly, a nuclear speckled pattern with the metaphase plate with a homogeneous (hyaline) texture should be classified as a mixed nuclear pattern and not as AC-30 [2, 3].
Antigen Association	AC-30 samples frequently do not exhibit a known autoantibody. However, the AC-30 pattern can also arise from the concurrent presence of multiple clinically relevant autoantibodies, particularly those targeting dsDNA, nucleosomes, Sm, U1-RNP, Scl-70/topo-I, TROVES/Ro60, and/or SS-B/La. The coexistence of two or more of these antibodies may interfere with the expression of their individual characteristic patterns, resulting in the AC-30 pattern. In this context, the AC-30 can be considered a specific case of mixed pattern. Additionally, some AC-30 samples contain anti-DFS70 antibodies in combination with other antinuclear antibodies, which can mask the typical anti-DFS70-associated AC-2 pattern.

AC-30 - Clinical Relevance

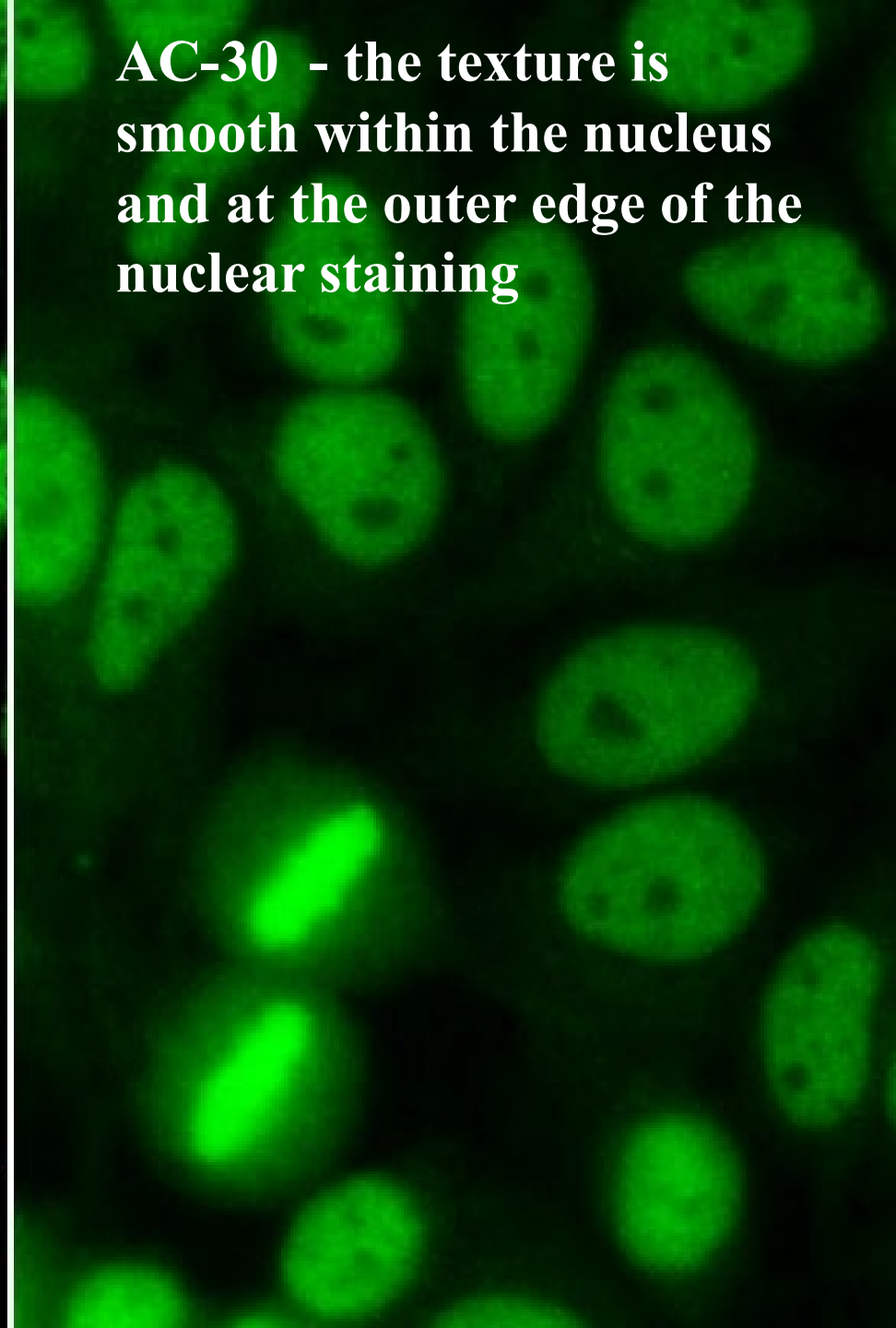
First level information

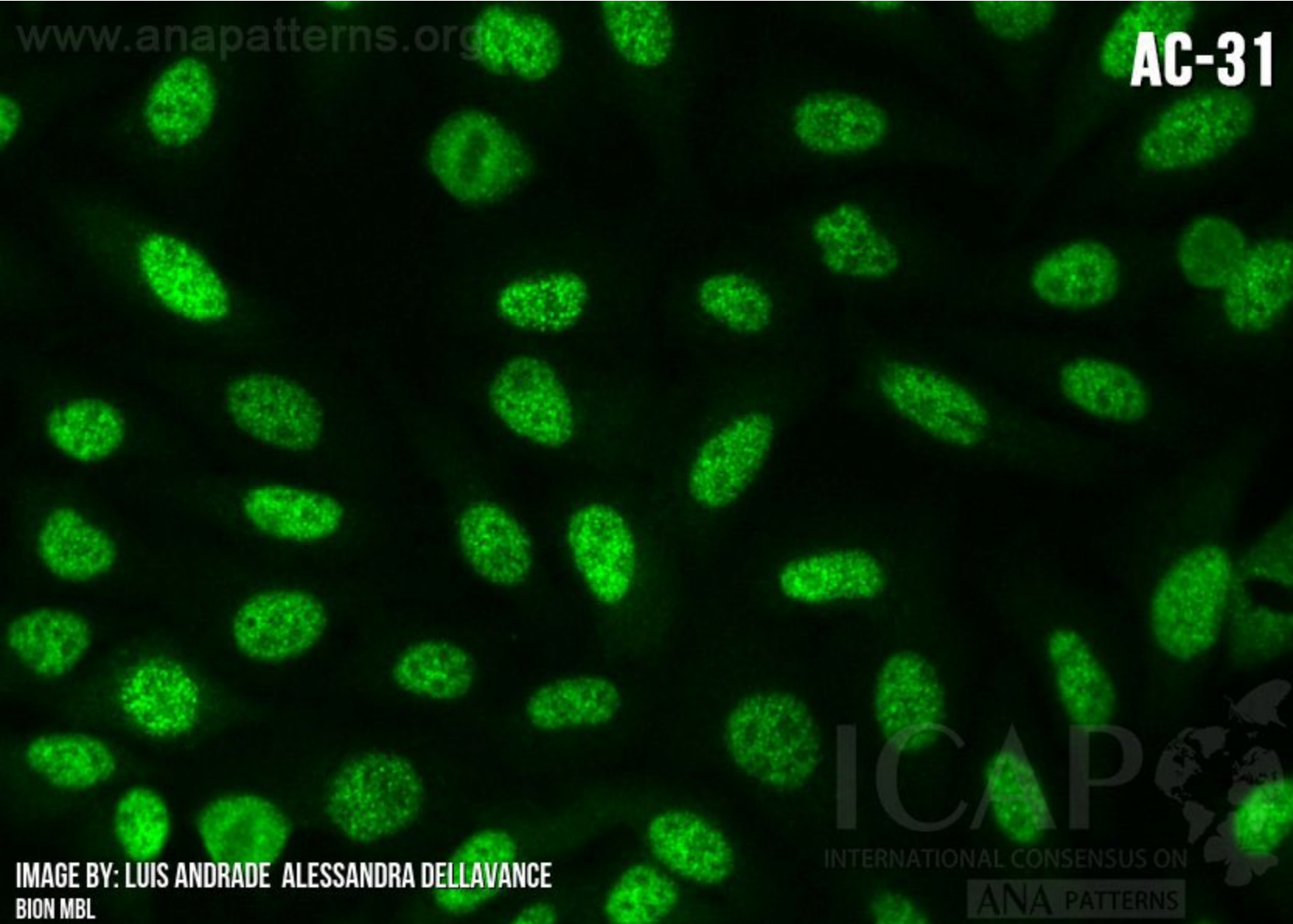
- The AC-30 pattern is commonly observed in individuals without any apparent autoimmune disease. However, since it may reflect the combined reactivity of several antinuclear antibodies, the AC-30 pattern can occasionally be seen in patients with systemic autoimmune rheumatic diseases, especially in cases with multiple antinuclear antibodies [2, 5].

**AC-2 - irregularity within
the nucleus and at the outer
edge of the nuclear staining**

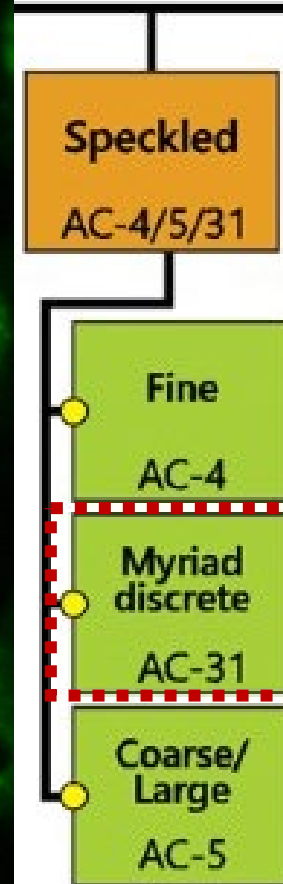


**AC-30 - the texture is
smooth within the nucleus
and at the outer edge of the
nuclear staining**





AC-31



AC-31
Myriad discrete
nuclear
speckled
– formerly AC4a

AC-31 - Clinical Relevance

First level information

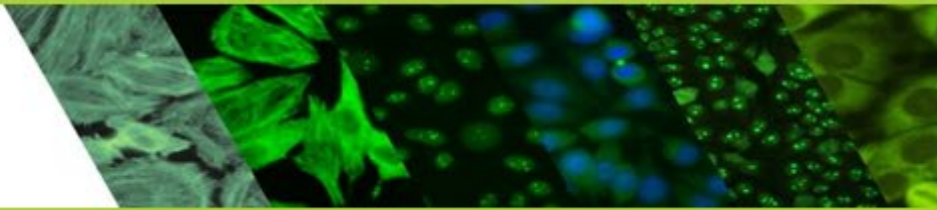
- Because of the strong association with anti-TROVE2/Ro60 antibodies, the AC-31 pattern is frequently seen in patients with systemic lupus erythematosus (SLE) and Sjögren's disease (SjD). It is not commonly observed in healthy individuals, as opposed to the AC-4 plain fine speckled nuclear pattern that is one of the most frequent HEp-2 IFA patterns in asymptomatic individuals and patients with no systemic autoimmune disease.

General comments on AC- pages updates

- **Descriptions of patterns:** more precise on what are stained and sometimes including what are not stained.
- **More information:** Some full names of antigens and full name of diseases are provided.
- **References:** Renumbering, additions, deletions, and updates.

Updates in terms used

ANA test	→	HEp-2 IFA
Autoimmune inflammatory myopathies (AIM)	→	Idiopathic inflammatory myopathies (IIM)
IIFA	→	IFA
PBC	→	primary biliary cholangitis (PBC)
Sjogren's syndrome (SjS)	→	Sjogren's Disease (SjD)
SS-A/Ro60	→	TROVE2/Ro60
SS-A/Ro52	→	TRIM21/Ro52



AC-2 (Nuclear dense fine speckled, DFS)

Clinical Relevance (First level information):

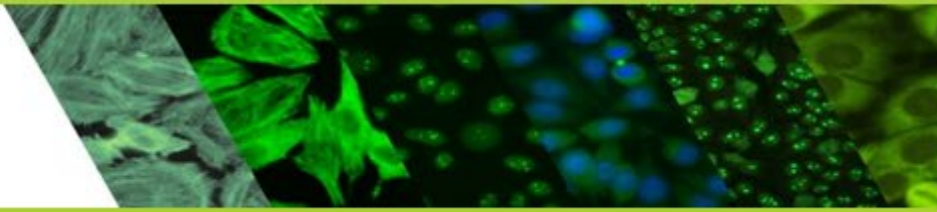
Both in apparently healthy individuals as well as in patients who do not have a SARD, the AC-2 pattern may rarely be attributed to autoantibodies directed to antigens other than DFS70 [*Dellavance et al. 2019*]. Prior to the recent new classification of AC-30 as a separate pattern differentiating from AC-2, there were reports of AC-2-like pattern in sera without anti-DFS70; most probably, many of those should be re-classified as AC-30.

For optimal clinical relevance the AC-2 pattern should be distinguished from the AC-30 pattern, as these are closely resembling patterns that have different clinical significance.

AC-7 (Few nuclear dots)

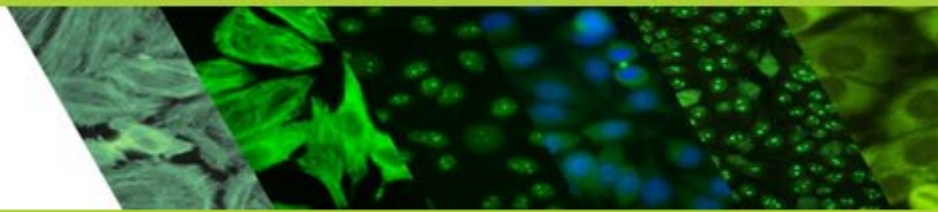
Clinical Relevance Second level information:

The detection of both anti-p80-coilin (AC-7) and anti-DFS70 (AC-2) was reported in Japan and it is also the experience in some reference laboratories in Europe. The implication is that AC-7 thus can be found in people without SARD as reported (*Goto et al 2006*).



AC-8 (Homogeneous nucleolar)

Description: Diffuse fluorescence of the entire nucleolus, while the metaphase plate shows no staining. **Frequently seen in combination with a fine speckled nuclear staining (AC-4).**



AC-13 (PCNA) AC-14 (CENP-F)

Clinical Relevance (Second level information):

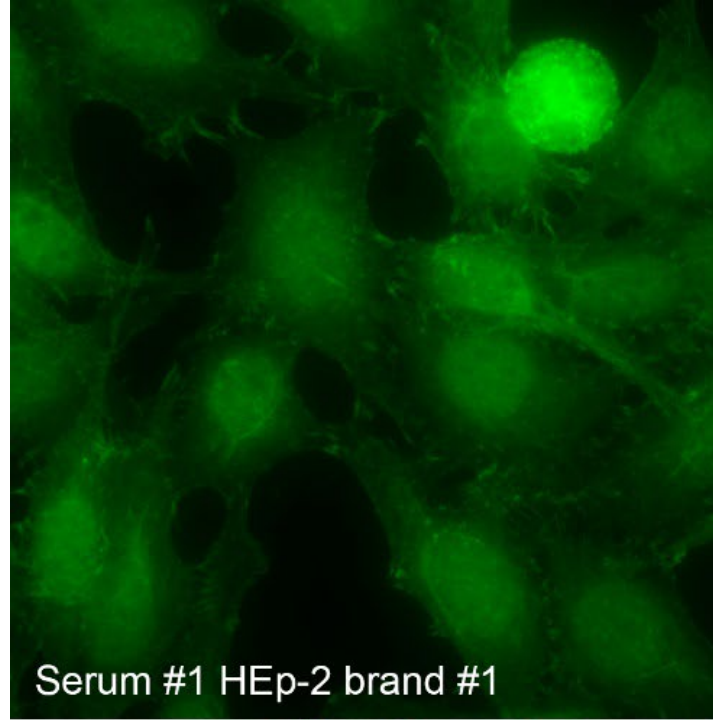
Other nuclear pleomorphic patterns that are distinct from AC-13 or AC-14 should be reported as unclassified patterns (AC-XX) with an appropriate description.

AC-17 Cytoplasmic fibrillar segmental

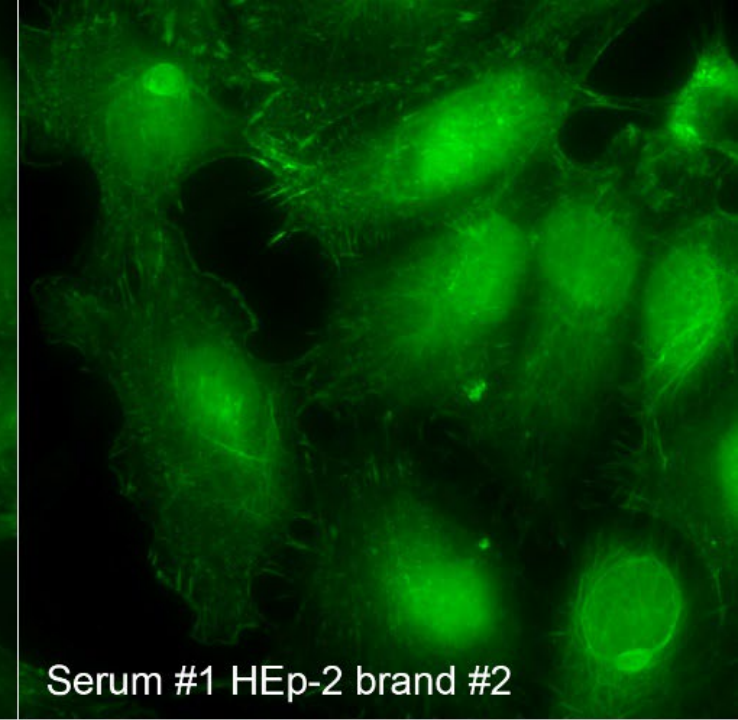
There is uncertainty in the characterization of sera with the AC-17 pattern.

The ability to detect AC-17 may depend in part on staining on certain HEp-2 brands.

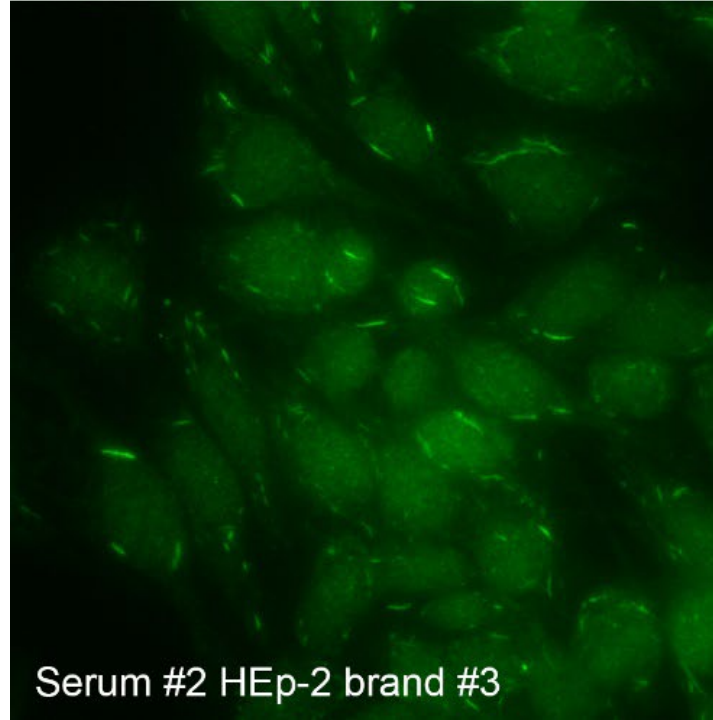
Werner Klotz's
images



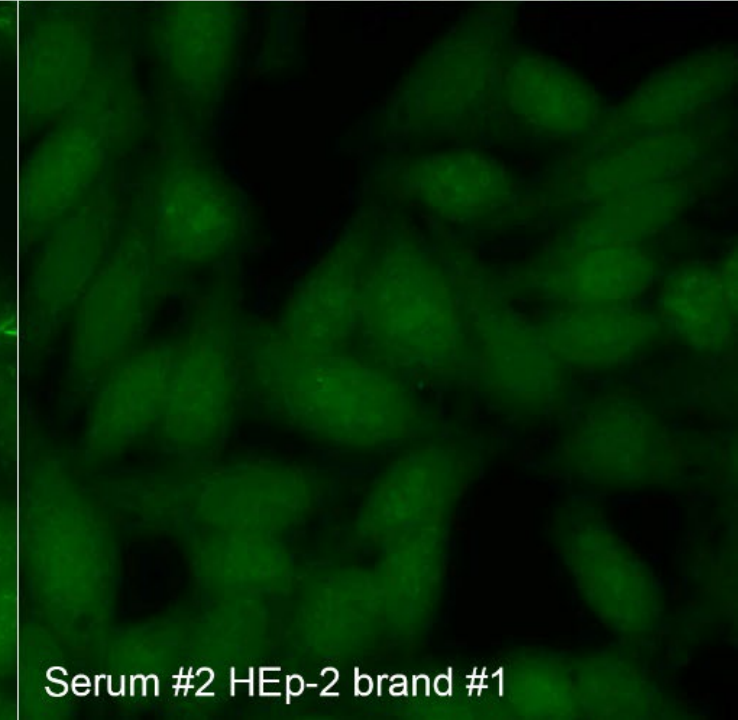
Serum #1 HEp-2 brand #1



Serum #1 HEp-2 brand #2



Serum #2 HEp-2 brand #3



Serum #2 HEp-2 brand #1

www.ANAPatterns.org



NEW TRAINING MODULE RELEASED!



Module 2: AC-XX PATTERNS
(Unusual HEp-2 IFA staining
patterns not catalogued in the
ICAP classification tree)

This training presents general information
about coding unusual HEp-2 IFA staining
patterns under the generic code AC-XX.

This module focuses on
the AC-XX patterns, which
include unusual HEp-2 IFA
patterns not yet catalogued
in the official ICAP
classification tree.

To access the module,
simply register, log in, and
click on the training icon in
the top menu of the
platform.

Access:
www.ANAPatterns.org

ICAP current initiatives

- AC-0 to AC-14 pages are being updated. The update information will be given to colleagues for translations to other languages – worldwide reach. Updates for AC-15 to AC-29 are to be finalized after this workshop.
- Online ICAP training module #2 on AC-XX is online and others are in the making.