ICAP newsletter
September 20, 2021

6th ICAP Workshop

The 6th ICAP Workshop was held in person on September 6, 2021 as a satellite meeting of the 15th Dresden Symposium on Autoantibodies. There were a total 80 participants for the Workshop held in a high ceiling and social-distanced conventional hall at the Dresden Fair. This image capture how the participants were seated, well separated from each other.

The Workshop program

10:30 ICAP in 2021: Status and Future Directions. *Ed Chan (Gainesville, USA)*

11.00 World panoramic survey on HEp-2 IFA patterns. *Trischna Martins (Berlin, Germany)*

11.20 Current laboratory and clinical practices in reporting and interpreting ANA patterns: results of an international survey *Lieve van Hoovels (Aalst, Belgium)*

11.40 Experience with ICAP's recommendations in Austria. *Manfred Herold (Innsbruck, Austria)*

12.00 Translating and implementing of ICAP in Bosnia and Herzegovina. *Amira Cerimagic (Sarajevo, Bosnia-Herzegovina)*

12.15 Improvement of decision trees for routine diagnostics and research. *Maria Infantino (Florence, Italy)*

13.20 Biological and technical aspects of the heterogeneity in HEp-2 IFA results in substrates from different sources. *Luis Andrade (São Paulo, Brazil)*

13.40 An international survey on methodological aspects of ANA testing by IFA analysis: current practices for method verification. *Martine Vercammen (Brugge, Belgium)*

14.00 How to report rare and mixed pattern? *Manfred Herold (Innsbruck, Austria)*

14.20 Artificial intelligence for pattern recognition according to ICAP by automatic IFA systems. *Rico Hiemann (Senftenberg, Germany)*

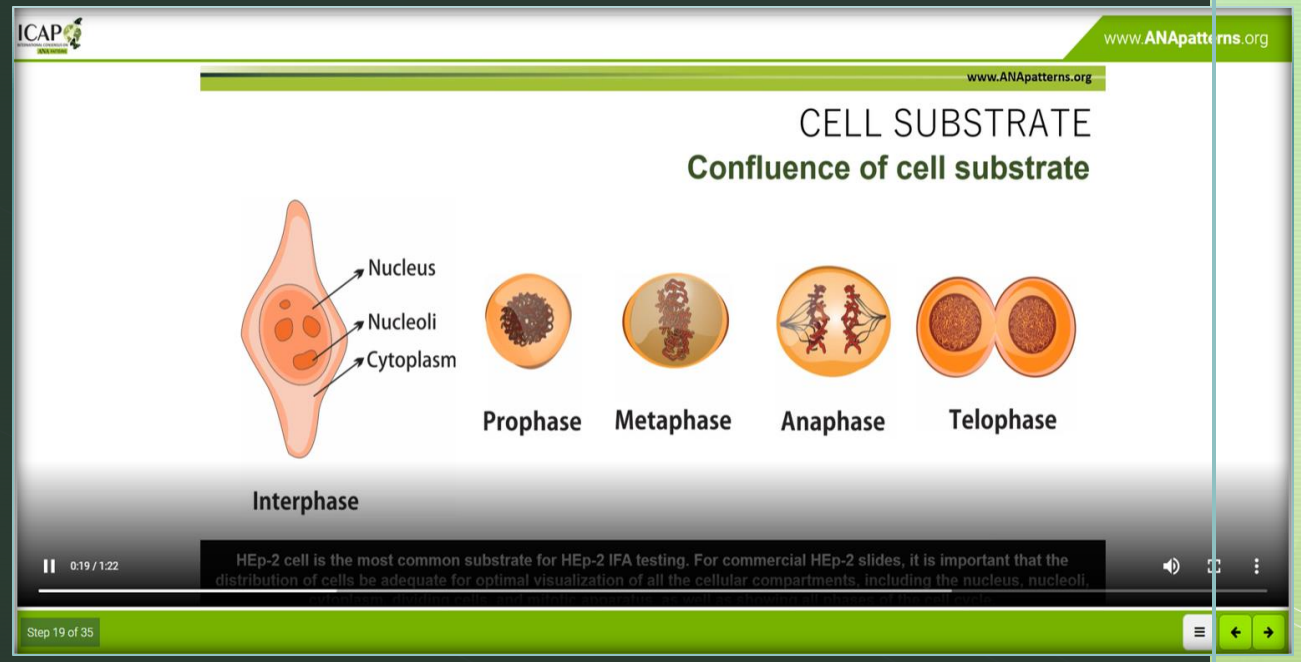
14.40 Discussion - Questions from ICAP users. *Ed Chan*

ICAP translations

Ed Chan acknowledged the many colleagues from different countries contributing to ICAP and especially efforts of the many translation teams. In brief, ICAP website has been translated to 16 languages including the latest in Korean in early 2021. Japanese translation is being completed and will be posted online in the next months. Thai translation is also expected to be finished in 2021.

ICAP training module 1

The first online training module (https://anapatterns.org/courses.php) was released ~1 year ago and the feedback has been highly positive. To access the training module, users must register on the website to access the training. Other training modules are being planned for basic and advanced patterns.



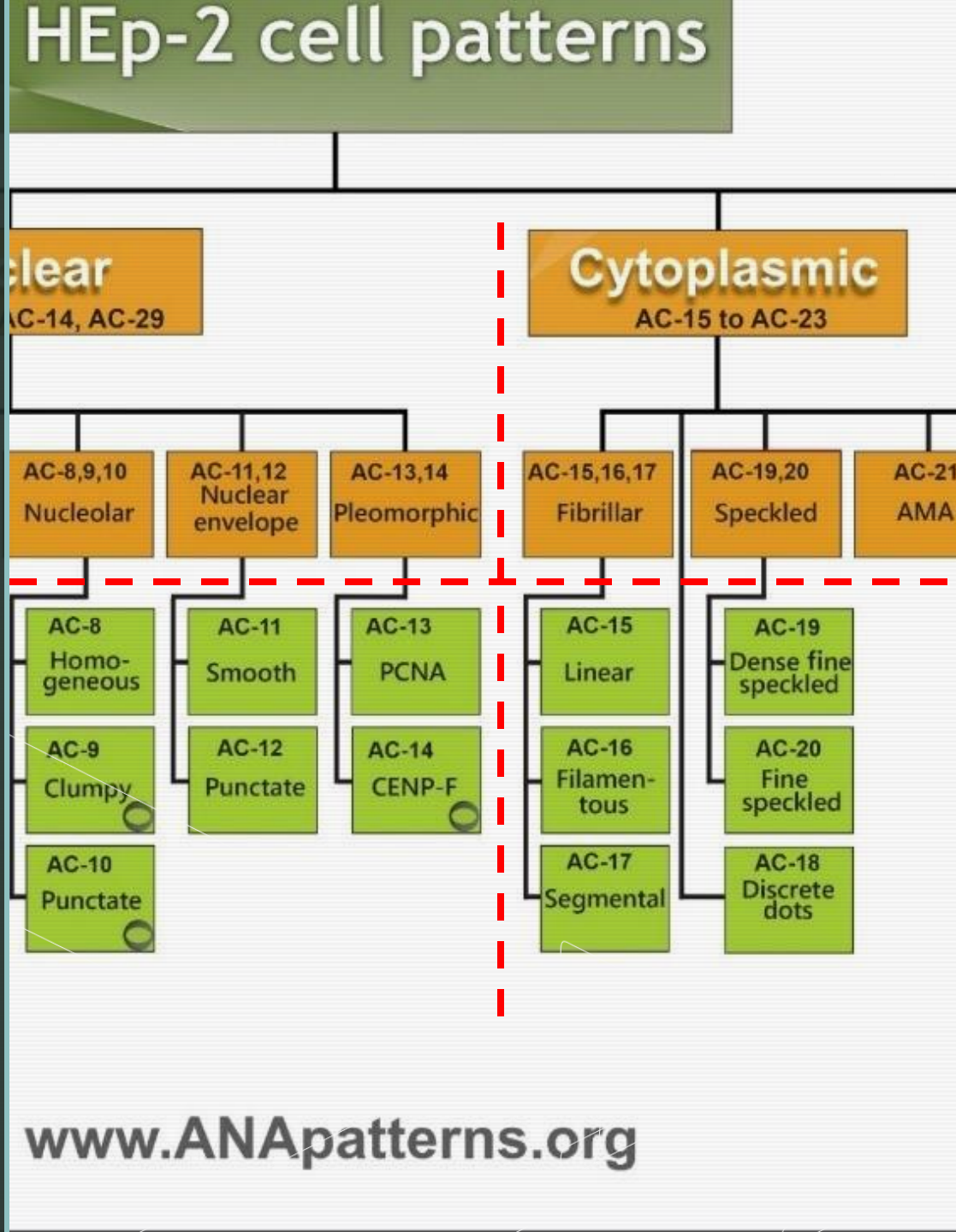
Mirrored ICAP website in China

To facilitate optimal broad access to ICAP in the most populated countries, the ICAP website has been replicated at a Shanghai hospital website under the website title ANApatterns.cn. This affiliate website is coordinated by Dr. Bing Zhang (*Assistant Professor, Clinical Laboratory, Renji Hospital, Shanghai*) and basically has the same version of English content plus translation into simplified Chinese. The program is running well and there are several hundred registered users since the debut about 1 year ago. The training module 1 was also translated into Chinese and made available to users in their first language. It seems clear that there is a strong ICAP community being developed there.

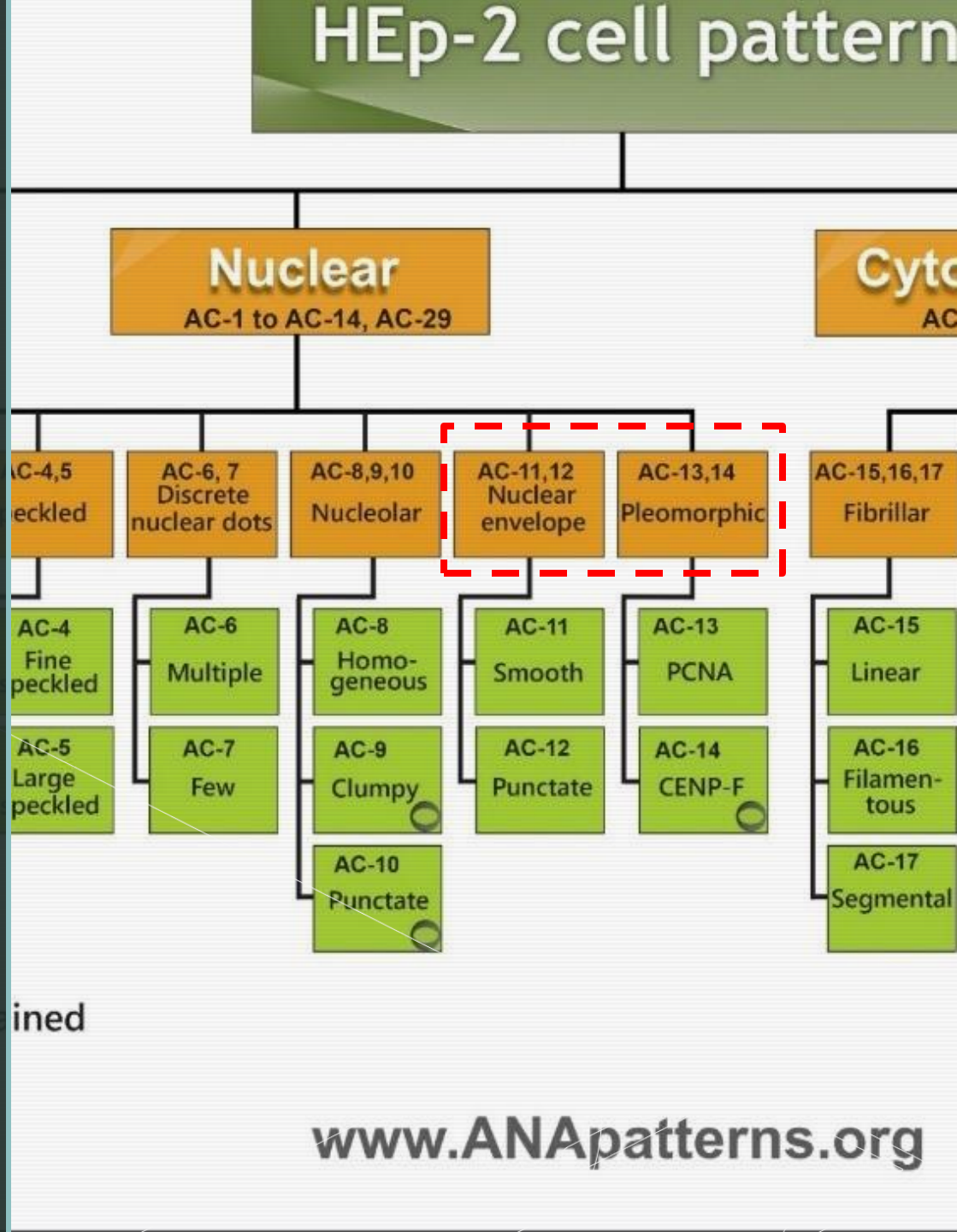
Revision of the ICAP classification chart

The proposed changes to the classification chart were discussed and the revised chart has been added to the ICAP webpage. In brief, these changes are made in response to feedbacks from the user community. The revised chart will have better visual separation between nuclear and cytoplasmic patterns as well as clear separation between competent-level and expert-level patterns.

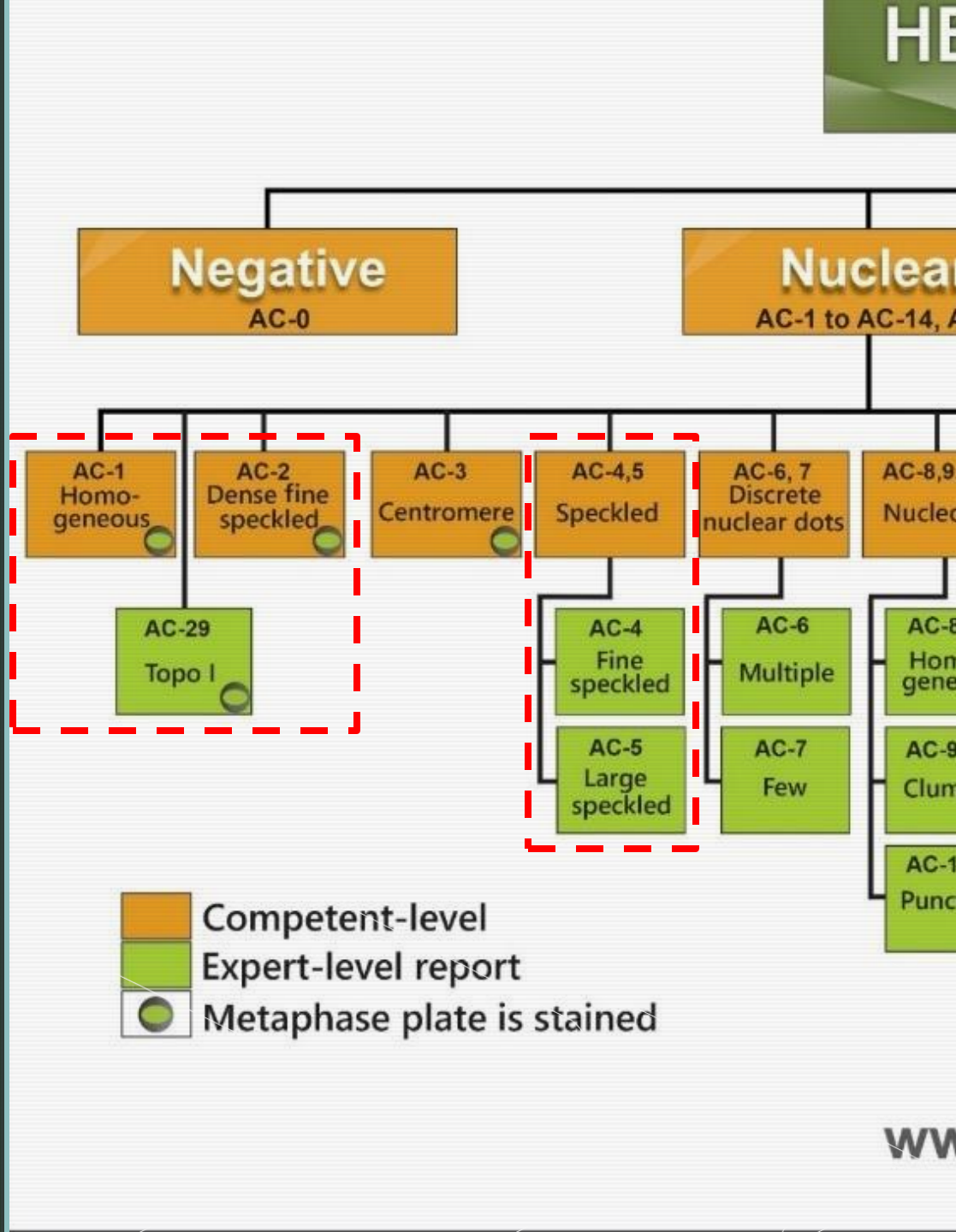
In order to achieve these, several changes are needed.



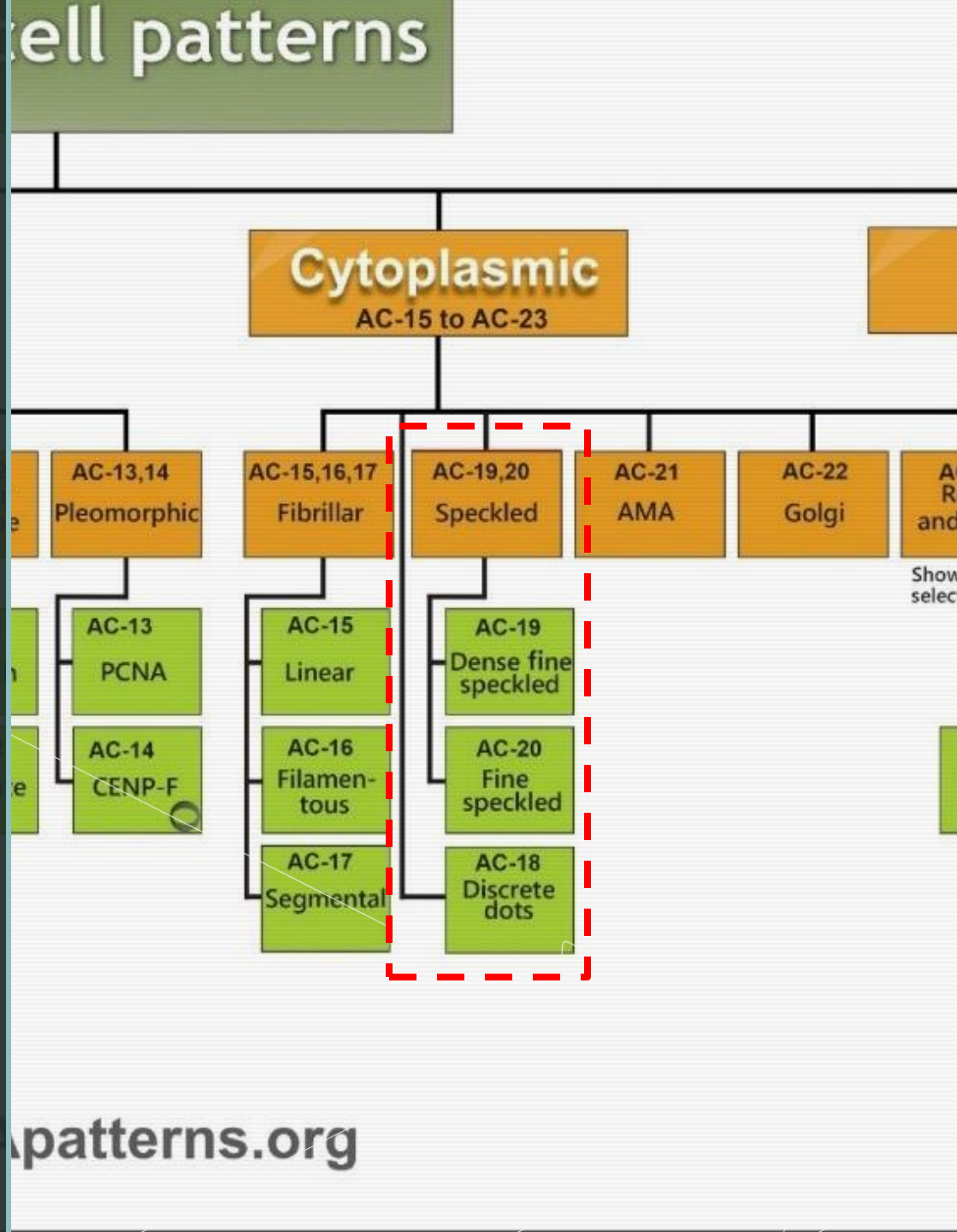
First, the nuclear envelope (AC-11,12) and pleomorphic (AC-13,14) patterns are changed to the competent-level.



Second, the nuclear dense fine speckled (AC-2) and Topo I-like (AC-29) patterns are re-organized closer to the nuclear homogeneous (AC-1) pattern to highlight their similarity in staining both interphase nuclei and mitotic condensed chromatin. This results in the nuclear speckled pattern at the competent level to represents only fine speckled (AC-4) and large speckled (AC-5) patterns and this change is more closely consistent with the fact that many laboratories do not separate between AC-4 and AC-5 patterns.



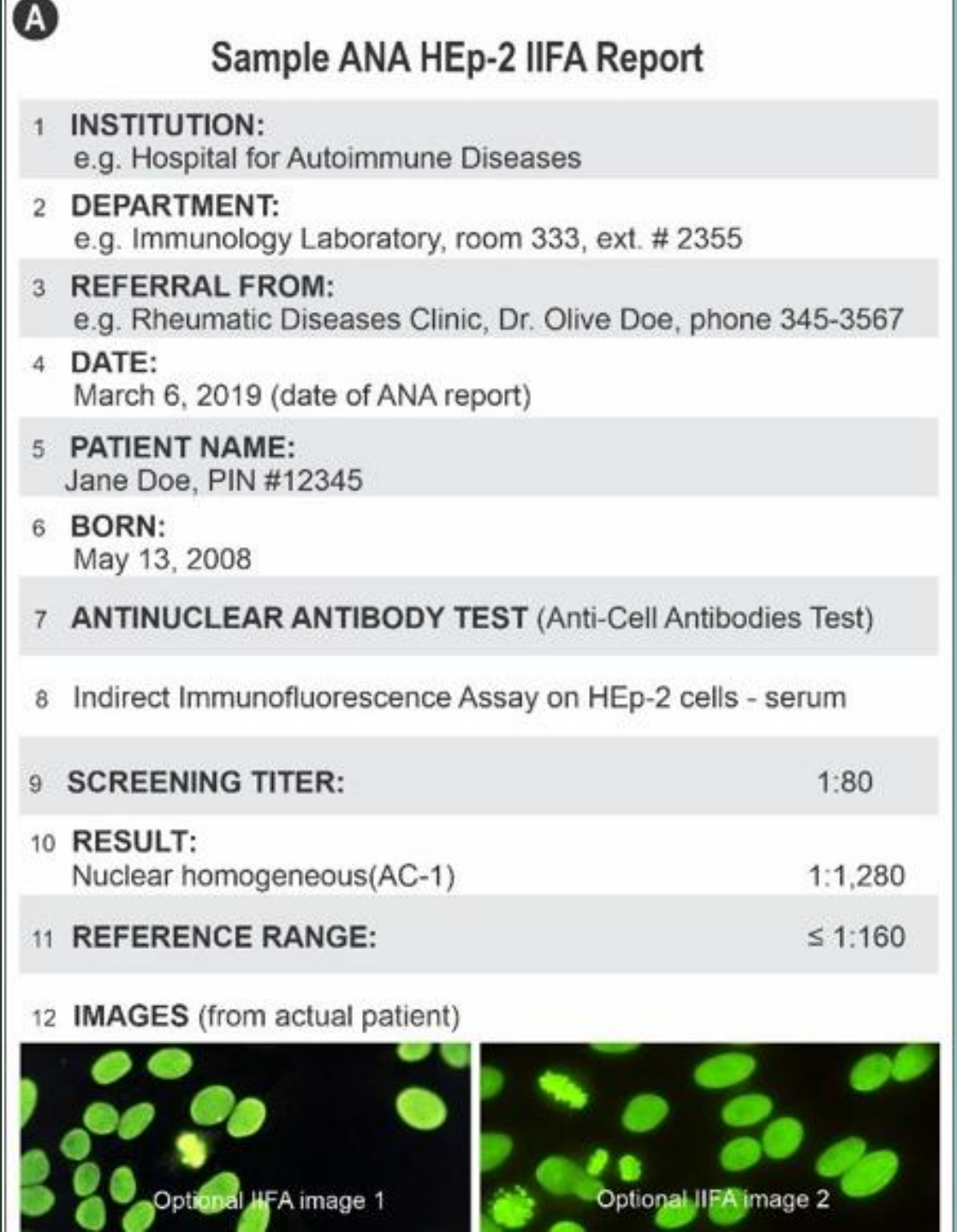
Third and lastly, cytoplasmic discrete dots pattern (AC-18) is separated from cytoplasmic dense fine speckled (AC-19) and cytoplasmic fine speckled (AC-20) patterns based on the obvious difference between AC-18 and the two more closely related AC-19 and AC-20.



New publications

A manuscript on ICAP consensus in ANA reporting has been formally accepted for publication: von Mühlen *et al.* "How to report the Antinuclear Antibodies (Anti-Cell Antibodies) test in HEp-2 cells: guidelines from the ICAP initiative." Immunol. Res.

Another manuscript from several ICAP members has just been accepted for publication primarily to differentiate anti-SS-A/Ro60 patterns from other AC-4 patterns: Röber *et al.* "Strong association of the myriad discrete speckled nuclear pattern with anti-SS-A/Ro60 antibodies: consensus experience of four international expert centers." Front. Immunol.



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Sample ANA HEp-2 IIFA Report

1 **INSTITUTION:**
e.g. Hospital for Autoimmune Diseases

2 **DEPARTMENT:**
e.g. Immunology Laboratory, room 333, ext. # 2355

3 **REFERRAL FROM:**
e.g. Rheumatic Diseases Clinic, Dr. Olive Doe, phone 345-3567

4 **DATE:**
March 6, 2019 (date of ANA report)

5 **PATIENT NAME:**
Jane Doe, PIN #12345

6 **BORN:**
May 13, 2008

7 **ANTINUCLEAR ANTIBODY TEST** (Anti-Cell Antibodies Test)

8 Indirect Immunofluorescence Assay on HEp-2 cells - serum

9 **SCREENING TITER:** 1:80

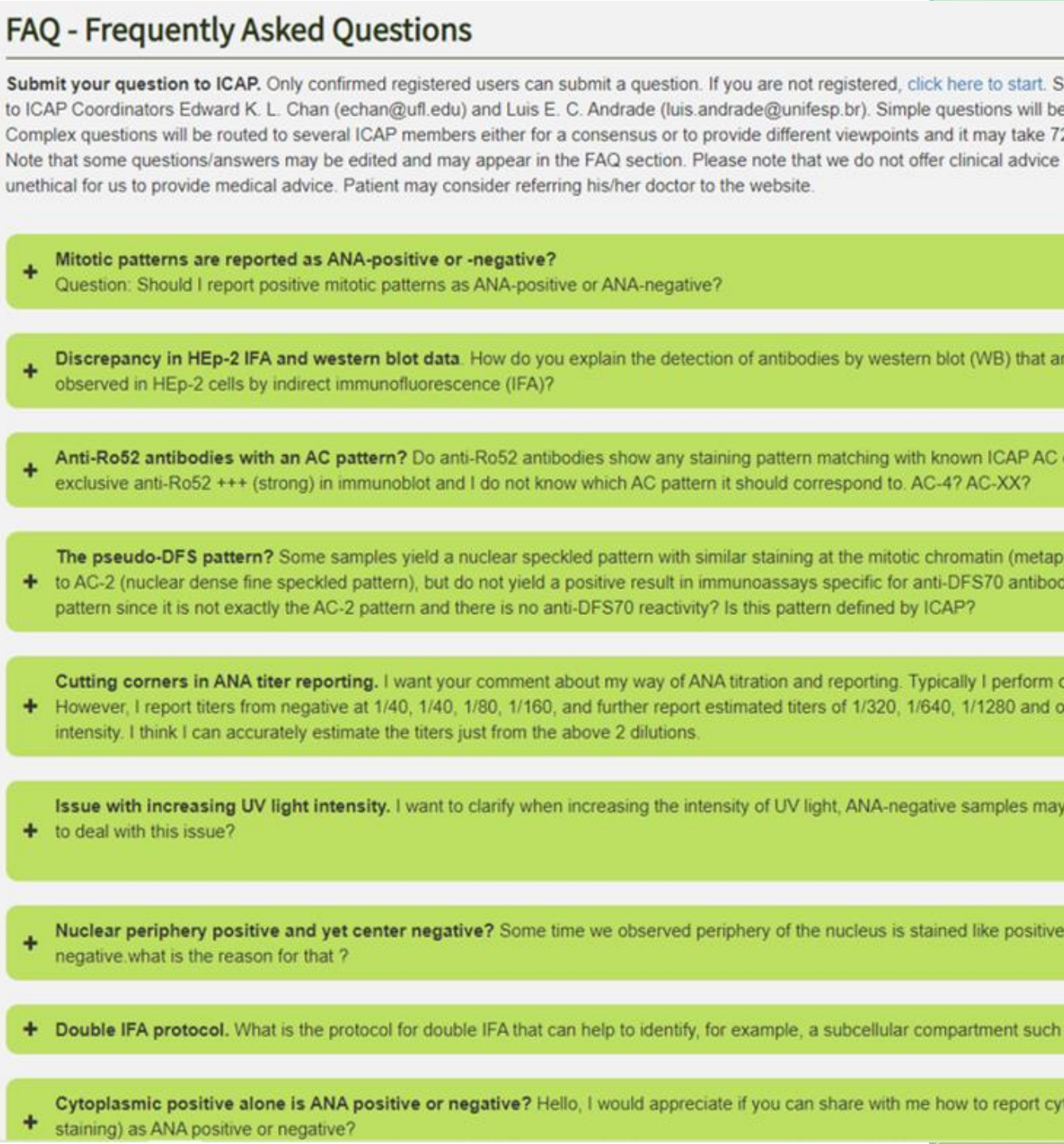
10 **RESULT:**
Nuclear homogeneous(AC-1) 1:1,280

11 **REFERENCE RANGE:** ≤ 1:160

12 **IMAGES** (from actual patient)

ICAP FAQ

There is a section on the ICAP website that answer questions from users. The link to this section has been placed on a separate tab for easy access (https://anapatterns.org/addFaq.php). There are more than 10 listed since starting a couple of years ago. Users can write ICAP coordinators for all IFA related questions and currently the webpage allows for the submission of up to three IFA images for consultation. Questions are sent to members with most relevant expertise to answer these questions. Only selected questions are edited for public posting on the FAQ section.



FAQ - Frequently Asked Questions

Submit your question to ICAP. Only confirmed registered users can submit a question. If you are not registered, click here to start. S
to ICAP Coordinators Edward K. L. Chan (echan@ufl.edu) and Luis E. C. Andrade (luis.andrade@unifesp.br). Simple questions will be
Complex questions will be routed to several ICAP members either for a consensus or to provide different viewpoints and it may take 72
Note that some questions/answers may be edited and may appear in the FAQ section. Please note that we do not offer clinical advice
unethical for us to provide medical advice. Patient may consider referring his/her doctor to the website.

+ **Mitotic patterns are reported as ANA-positive or -negative?**
Question: Should I report positive mitotic patterns as ANA-positive or ANA-negative?

+ **Discrepancy in HEp-2 IFA and western blot data**. How do you explain the detection of antibodies by western blot (WB) that ar
observed in HEp-2 cells by indirect immunofluorescence (IFA)?

+ **Anti-Ro52 antibodies with an AC pattern?** Do anti-Ro52 antibodies show any staining pattern matching with known ICAP AC
exclusive anti-Ro52 +++ (strong) in immunoblot and I do not know which AC pattern it should correspond to. AC-4? AC-XX?

+ **The pseudo-DFS pattern?** Some samples yield a nuclear speckled pattern with similar staining at the mitotic chromatin (metap
to AC-2 (nuclear dense fine speckled pattern), but do not yield a positive result in immunoassays specific for anti-DFS70 antibod
pattern since it is not exactly the AC-2 pattern and there is no anti-DFS70 reactivity? Is this pattern defined by ICAP?

+ **Cutting corners in ANA titer reporting.** I want your comment about my way of ANA titration and reporting. Typically I perform
However, I report titers from negative at 1/40, 1/40, 1/80, 1/160, and further report estimated titers of 1/320, 1/640, 1/1280 and o
intensity. I think I can accurately estimate the titers just from the above 2 dilutions.

+ **Issue with increasing UV light intensity.** I want to clarify when increasing the intensity of UV light, ANA-negative samples may
to deal with this issue?

+ **Nuclear periphery positive and yet center negative?** Some time we observed periphery of the nucleus is stained like positive
negative.what is the reason for that ?

+ **Double IFA protocol.** What is the protocol for double IFA that can help to identify, for example, a subcellular compartment such

+ **Cytoplasmic positive alone is ANA positive or negative?** Hello, I would appreciate if you can share with me how to report cy
staining) as ANA positive or negative?

New ICAP member

Congratulations to May Choi MD, FRCPC, who has accepted to serve on the ICAP committee. Dr. Choi is Assistant Professor at the Cumming School of Medicine, University of Calgary, and a certified rheumatologist with a special interest in systemic lupus erythematosus and other ANA-related rheumatic disease. She completed certification in Rheumatology (Royal College of Physicians, Canada) and a Master of Public Health (MPH) under the supervision of Dr. Karen Costenbader at Harvard University. She has led and continues autoantibody-centered studies for the SLE International Collaborating Clinics (SLICC). She is also the Associate Director of MitogenDx Laboratory, which specializes in novel autoantibody and biomarker testing for autoimmune diseases, and also the Associate Director of the University of Calgary Lupus Centre of Excellence.

Open discussions

We thank users for their continuing support and feedbacks. In future workshops, there are suggestions for encoding recommendations for basic laboratories and to address clinical consequences of AC classification. These are important questions and much efforts are needed to achieve these goals.