De retour du 14ème Congrès international en Autoimmunité … quelques pistes de réflexion

Sophie Desplat-Jégo

11/10/2024

Congrès international bisannuel

4 jours de congrès

+ 2000 participants

3 sessions en parallèle

des dizaines de e-posters

(où sont passés les posters affichés ?)

24 exposants industriels

Automates en auto-immunité

Où sont passées les microplaques ?

(GEAI: utilisateurs ?)

HOB®

Bioclia 500

- Jusqu'à 90 tests / heure
- Random access
- Premier résultat en 48 min
- Jusqu'à 24 échantillons en chargement
- 12 Réactifs pour l'autoimmunité et 33 pour l'allergie
- Zone réactif réfrigérée
- Dimension et poids : 50x64.5x64.8cm - 89kg

Autoimmunité et allergie en simultané

Automatisation des dots blots

AliveDx

Innovative, multiplexing microarray

- Distinctive design – up to 132 spots of microscopically printed biologic material enable multiplexed results in a single step
- High multiplexing with up to 11 analytes on a single microarray (AiPlex CTD assay)
- Designed with the patient in mind, the microarray requires only a small volume patient sample for comprehensive results

Performance of MosaiQ AiPlex CTD versus Composite Comparator Results

ANALYTE	AGREEMENT REACTIVE (PPA) (%) n/N / [95% CI]	AGREEMENT NON-REACTIVE (NPA) (%) n/N / [95% CI]	AGREEMENT OVERALL (OPA) (%) n/N / [95% CI]
dsDNA	98.9 172/174 / [95.9, 99.9]	97.2 411/423 / [95.1, 98.5]	97.7 583/597 / [96.1, 98.7]
CENP-B	97.5 78/80 / [91.3, 99.7]	99.3 420/423 / [97.9, 99.9]	99.0 498/503 / [97.7, 99.7]
Jo-1	90.3 28/31 / [74.3, 98.0]	100 420/420 / [99.1, 100]	99.3 448/451 / [98.1, 99.9]
Ribosomal P	98.9 89/90 / [94.0, 100]	99.5 422/424 / [98.3, 99.9]	99.4 511/514 / [98.3, 99.9]
SS-A 60	100 175/175 / [97.9, 100]	99.8 422/423 / [98.7, 100]	99.8 597/598 / [99.1, 100]
TRIM21	99.4 153/154 / [96.4, 100]	98.3 417/424 / [96.6, 99.3]	98.6 570/578 / [97.3, 99.4]
SS-B	85.9 79/92 / [77.1, 92.3]	100 424/424 / [99.1, 100]	97.5 503/516 / [95.7, 98.7]
Sm	88.6 78/88 / [80.1, 94.4]	99.8 423/424 / [98.7, 100]	97.9 501/512 / [96.2, 98.9]
Sm/RNP	95.3 121/127 / [90.0, 98.3]	100 425/425 / [99.1, 100]	98.9 546/552 / [97.7, 99.6]
Scl-70	78.4 29/37 / [61.8, 90.2]	98.3 404/411 / [96.5, 99.3]	96.7 433/448 / [94.5, 98.1]
U1RNP	80.5 103/129 / [72.5, 86.9]	98.3 417/424 / [96.6, 99.3]	94.2 520/553 / [91.9, 96.0]

Makoto Miyara, CHU Pitié, Paris, 2024

Abstract ID 41 CEREBROSPINAL FLUID CYTOKINES: SET-UP OF REFERENCE RANGES AND CLUSTERING ANALYSIS TO IDENTIFY DIFFERENT PHENOTYPIC EXPRESSION IN IMMUNE-MEDIATED NEUROLOGICAL DISORDER

Martina Fabris, Roberta Fiorino, Ilaria Del Negro, Gianluca Foresti, Alberto Vogrig, Giovanni Ermanis, Mariarosaria Valente – DMED, University of Udine - Italy

Table 1. Cytokine expression ranges calculated in 201 CFS consecutive samples.

Cytokine	IL-1b	IL-6	IL-8	TNF-a	CXCL10	IFN-g	IL-10	IL-2Ra/sCD25
Expression levels	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml
Low (-)	<0,1	0,1-3,2	15,2-37,8	0-0,5	5,6-143	<0,1	0,1-0,6	5,7-17,8
Intermediate (+)	0,1-0,2	3,3-5,2	37,9-54,8	0,6-0,7	144-257	<0,1	0,7-0,9	17,9-29,8
High (++)	0,2-0,3	5,3-10,2	54,9-102	0,8-1,2	258-461	0,2-0,7	1-1,7	29,9-50,6
Very high (+++)	>0,3	>10,2	>102	>1,2	>461	>0,7	>1,7	>50,6

Table 2. Cytokines ranges in 462 patients (march 2020 - march 2024)

Cytokine	IL-1beta	IL-6	IL-8	TNF-alpha	CXCL10	IFN-gamma	IL-10	IL-2R alpha
Expression level	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml	pg/ml
Low (-)	<0,1	0,1 - 3,2	7,5 - 37,6	0 - 0,5	5,6 - 169	<0,1	0,1 - 0,5	5,7 - 16,5
Moderate (+)	0,1 - 0,2	3,3 - 4,8	37,7 - 52,4	0,5 - 0,7	170 - 275	0,1 - 0,2	0,6 - 0,9	16,6 - 27.4
High (++)	0,2 - 0,3	4,9 - 11,2	52,5 - 88	0,7 - 1,2	276 - 456	0,2 - 0,7	1 - 1,7	27.5 - 47,1
Very high (+++)	>0,3	>11,3	>88	>1,2	>456	>0,7	>1,7	>47,1

Table 5.	Total	Cluster 0	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
HaNDL (headache, neurologic deficits, CSF lynphocytosis)	3		3 (100%)					
COVID related encephalitis	5	3 (60%)	1 (20%)			1 (20%)		
Cerebrovascular diseases	7	5 (71.4%)			2 (28,6%)			
Hydrocephalus	8	5 (62.5%)			3 (37.5%)			
Epylepsy	14	9 (64.3%)	1 (7.1%)	1 (7.1%)	3 (21.4%)			
Neurodegenerative diseases	16	13 (81.3%)			2 (12.5%)			1 (6.3%)
Infections of the CNS	17	3 (17.7%)	2 (11.8%)		7 (41.2%)	4 (23.5%)	1 (5.9%)	
Multiple sclerosis	45	34 (75.6%)			11 (24.4%)			
Immune-mediated diseases	49	32 (65,3%)	3 (6,1%)		13 (26.5%)			1 (2%)
Others (unclassified)	19	14 (73.7%)			5 (26.3%)			

CQE en auto-immunité

Insights gained from a decade of autoantibody testing harmonization: Reflections from the UK NEQAS External Quality Assurance program

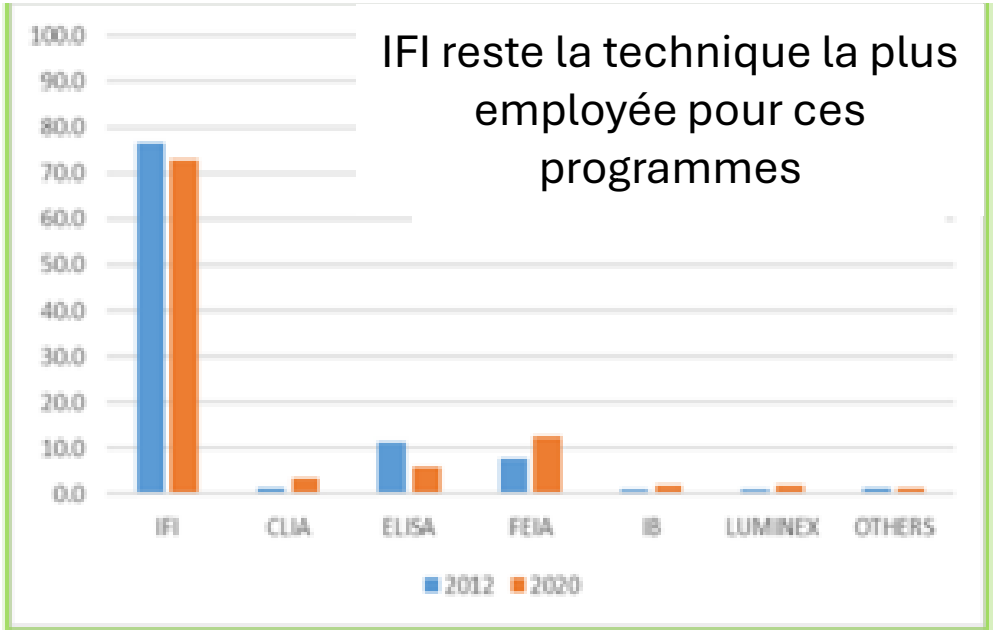
Emirena Garrafa[1,2],Teresa Carbone[3], Dina Patel[4], Maria Infantino[5], Nicola Bizzaro [6]

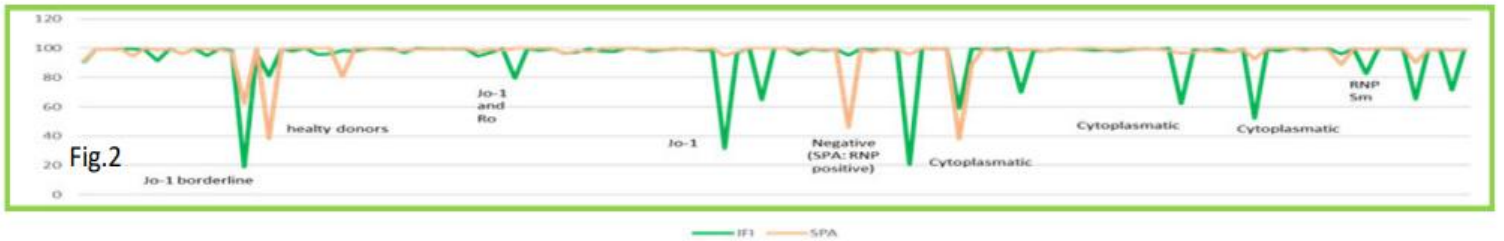
Study Group on Autoimmunology of the Italian Society of Clinical Pathology and Laboratory Medicine.

[1] DMMT, University of Brescia, and[2] Dep of Laboratory.tory Diagnostics, ASST Spedali Civili, Brescia,Italy, [3] Immunopathology Laboratory, San Carlo Hospital, Potenza, Italy, [4] UK NEQAS Immunology, Immunochemistry and Allergy , Sheffield, UK, [5] Immunology and Allergology Laboratory, S. Giovanni di Dio Hospital, Florence, Italy, [6] Laboratory of Clinical Pathology, Azienda Sanitaria Universitaria Integrata, Udine, Italy

Table 2	2012	2021		2012	2021
ENA	208	418	**aCL IgG/Ig**	1439	1558
ELISA %	36	19	ELISA %	73	27
FEIA %	29	55	FEIA %	25	40
CLIA %	1	2	CLIA %	1	24
Luminex %	9	16	Luminex %	0	9
IB %	23	6	**aB2GPI IgG**	996	1332
LIA %	2	2	ELISA %	68	22
Centrome	206	239	FEIA %	30	42
ELISA %	8	7	CLIA %	2	26
FEIA %	39	44	Luminex %	0	10
CLIA %	14	12	**ACPA**	322	409
Luminex %	13	19	ELISA %	33	13
IB %	24	16	FEIA %	57	50
LIA %	2	2	CLIA %	7	29
			Luminex %	2	7
ANTI Ds-D	699	723	Other %	2	1
ELISA %	31	13	**RF**	343	310
FEIA %	34	13	ELISA %	15	21
CLIA %	0	14	CLIA %	0	2
Luminex %	5	7	Luminex %	0	0
IB/LIA %	0	1	TURBID %	43	56
CLIFT %	28	26	AGGLUT %	12	5
RIA %	2	2	NEPHEL %	29	15

Tendance à ↗ nb participants (ENA +++)





Discordances ds rendu: JO-1 et cytoplasmiques +++

IA et auto-immunité

ChatGPT and autoimmunity – A new weapon in the battlefield of knowledge

Mohammad Darkhabani[1], Mohamad Aosama Alrifaai[1], Abdulrahman Elsalti[1], Yoad M. Dvir[2], Naim Mahroum[1]

ChatGPT has the potential to completely revolutionize the medical field as we know it, especially autoimmunity.

Scan to read our Article!

[1]International School of Medicine, Istanbul Medipol University, Istanbul, Turkey.
[2]Cyber Artificial Intelligence Researcher

Autoimmunity
Ljubljana, Slovenia, 17-20 May, 2024

Potential use of ChatGPT in medicine:

ChatGPT could prove useful with tasks like study design, data analysis, suggesting methods, and manuscript preparation. It could even highlight key strengths or weaknesses in certain studies to aid the researcher and help them save time.

For a fast growing field like autoimmunity, ChatGPT could assist rheumatologists in decision making, providing and summarizing guidelines and treatment options with potential benefits, side effects, and drug interactions.

With the increased amount of computer work required by physicians it can assist clinicians with tasks such as data entry, data extraction, & data analysis, allowing physicians to dedicate more time towards their patients.

Limitations & Cyber threats of ChatGPT:

Lack of originality: Articles created by ChatGPT can be also affected by differences in phrasing and expressing from different authors, all of which limit ChatGPT usage in research field

The second- generation embedding model of ChatGPT is limited to events occurred up to September 2021.

Possibility of Data breaches & Rogue AI attacks posses a series threat as research data is highly sensitive and must be protected. Rogue AI systems could potentially be hacked to steal or corrupt research & medical data.

A conversation with ChatGPT:

After describing different aspects of ChatGPT, we evaluated its capabilities by applying two questions in approaching a clinical scenario and compiling research data:

- The first one is a medically challenging case of a patient with an autoimmune disease
- The second question applies to evaluating a recent article concerning the relation of COVID-19 to autoimmune bullous diseases.

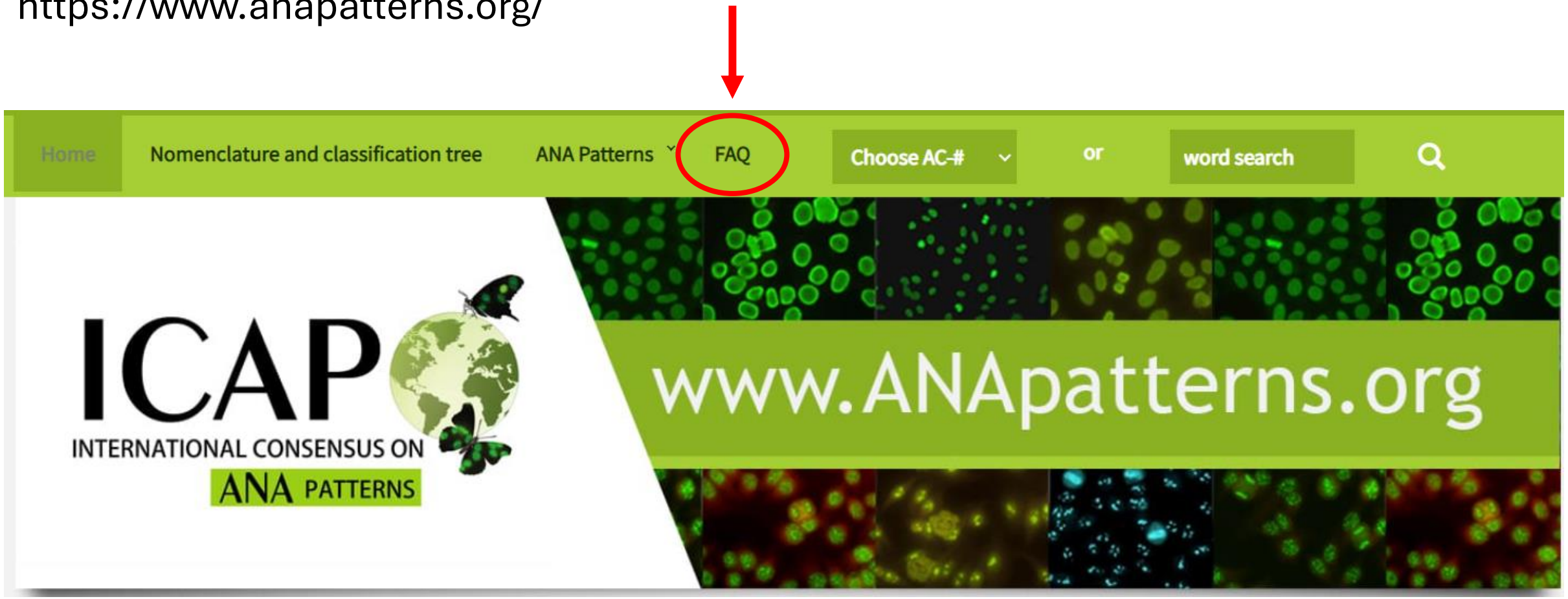
Conclusions:

- There is more to come with regards to the abilities ChatGPT possesses in medicine, particularly as it is constantly improving & being updated.
- The contribution to writing as well as reviewing articles is extremely valuable. The lists of differential diagnosis produced are fascinating and of great help when it comes to challenging fields such as autoimmunity.
- As true for every new innovation, the limitations, the cyber concerns, as well as the implications of ChatGPT need to be carefully and continuously evaluated.

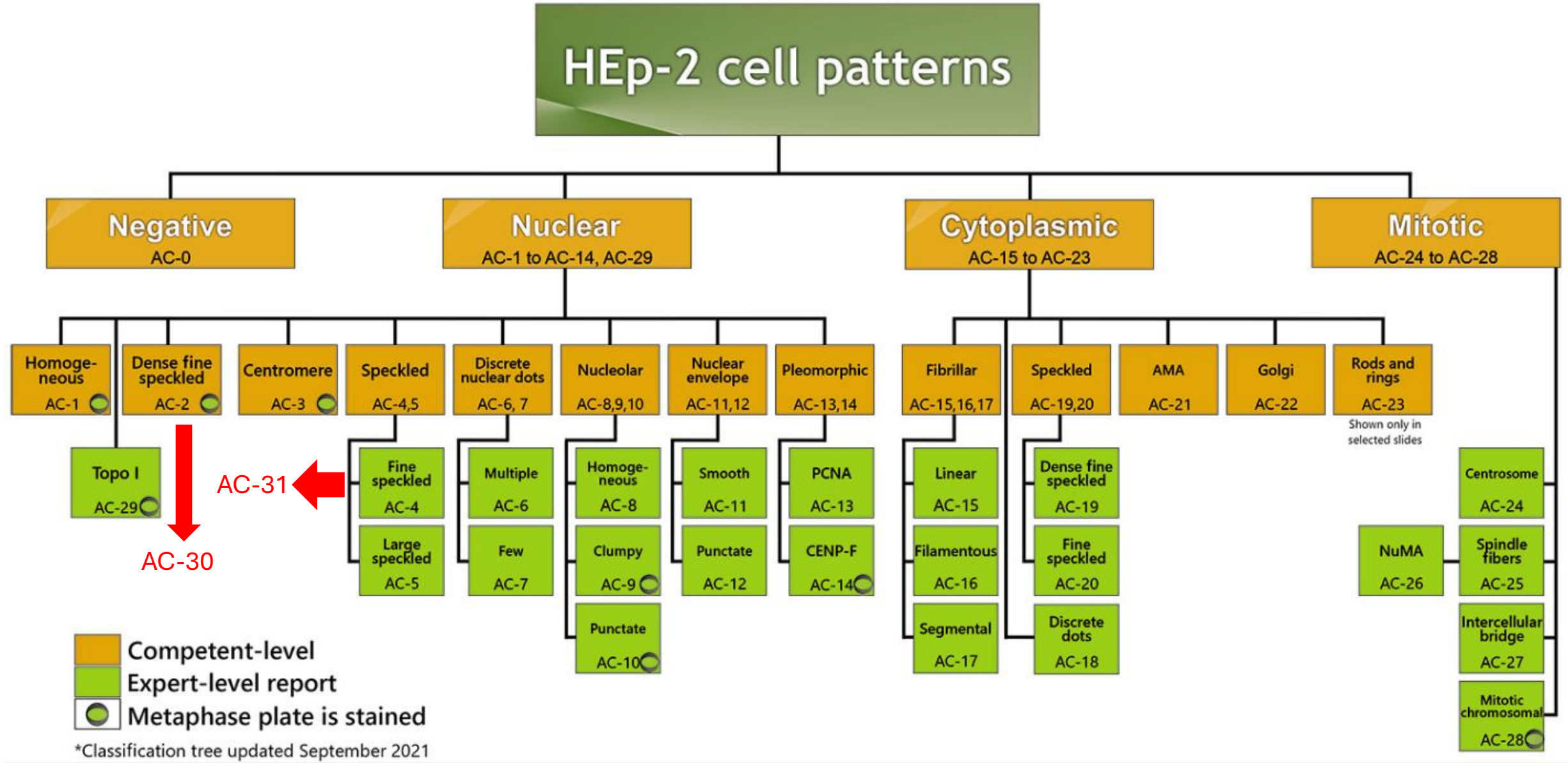
Utilisé pour biblio mais aussi présentations des internes !

Classifications et auto-immunité

https://www.anapatterns.org/



Classification utilisée par le GEAI ?


HEp-2 cell patterns
Negative
AC-0
Nuclear
AC-1 to AC-14, AC-29
Cytoplasmic
AC-15 to AC-23
Mitotic
AC-24 to AC-28
Homoge-neous
AC-1
Dense fine speckled
AC-2
Centromere
AC-3
Speckled
AC-4,5
Discrete nuclear dots
AC-6, 7
Nucleolar
AC-8,9,10
Nuclear envelope
AC-11,12
Pleomorphic
AC-13,14
Fibrillar
AC-15,16,17
Speckled
AC-19,20
AMA
AC-21
Golgi
AC-22
Rods and rings
AC-23
Shown only in selected slides
Topo I
AC-29
AC-31
AC-30
Fine speckled
AC-4
Large speckled
AC-5
Multiple
AC-6
Few
AC-7
Homoge-neous
AC-8
Clumpy
AC-9
Punctate
AC-10
Smooth
AC-11
Punctate
AC-12
PCNA
AC-13
CENP-F
AC-14
Linear
AC-15
Filamentous
AC-16
Segmental
AC-17
Dense fine speckled
AC-19
Fine speckled
AC-20
Discrete dots
AC-18
Centrosome
AC-24
NuMA
AC-26
Spindle fibers
AC-25
Intercellular bridge
AC-27
Mitotic chromosomal
AC-28
Competent-level
Expert-level report
Metaphase plate is stained
*Classification tree updated September 2021

Autoimmunity Reviews
Volume 23, Issue 9, September 2024, 103608

Reflecting on a decade of the international consensus on ANA patterns (ICAP): Accomplishments and challenges from the perspective of the 7th ICAP workshop

Luis E.C. Andrade [a b], Werner Klotz [c], Manfred Herold [c], Lucile Musset [d], Jan Damoiseaux [e], Maria Infantino [f], Orlando G. Carballo [g h], May Choi [i], Carlos A. von Mühlen [j], Ignacio Garcia-De La Torre [k], Minoru Satoh [l m], Paulo L.C. Francescantonio [n], Tsuneyo Mimori [o], Karsten Conrad [p], Wilson de Melo Cruvinel [n], Edward K.L. Chan [q], Marvin J. Fritzler [i r]

Highlights

- ICAP promotes harmonization in performance, interpretation, and reporting HEp-2 IFA.
- The AC-2, but not the novel AC-30 pattern, is associated with anti-DFS70 antibodies.
- The novel AC-31 nuclear pattern is strongly associated with anti-Ro60 antibodies.
- Competent/Expert definition depends on analyst expertise and the image under analysis.

The 2023 ACR/EULAR Antiphospholipid Syndrome Classification Criteria

Entry Criteria[a]
At least one documented[b] clinical criterion listed below (domains 1-6)
plus
A positive antiphospholipid antibody (aPL) test
(a lupus anticoagulant test, or moderate-to-high titers of anticardiolipin or anti-β_2-glycoprotein-I antibodies [IgG or IgM])
within three years[b] of the clinical criterion

If absent, do not attempt to classify as APS - If present, apply additive criteria

Additive clinical and laboratory criteria[a]
Do not count a clinical criterion if there is an equally or more likely explanation than APS.
Within each domain, only count the highest weighted criterion towards the total score.

Clinical domains and criteria	Weight	Clinical domains and criteria	Weight
D1. Macrovascular (Venous Thromboembolism [VTE])		**D2. Macrovascular (Arterial Thrombosis [AT])**	
VTE with a high-risk VTE profile[c]	1	AT with a high-risk CVD profile[c]	2
VTE without a high-risk VTE profile[c]	3	AT without a high-risk CVD profile[c]	4
D3. Microvascular		**D4. Obstetric**	
Suspected (one or more of the following)	2	≥3 Consecutive pre-fetal (<10w) and/or early fetal (10w 0d -15w 6d) deaths	1
Livedo racemosa (exam)			
Livedoid vasculopathy lesions (exam)			
Acute/chronic aPL-nephropathy (exam or lab)			
Pulmonary hemorrhage (symptoms and imaging)		Fetal death (16w 0d – 33w 6d) in the absence of pre-eclampsia (PEC) with severe features or placental insufficiency (PI) with severe features	1
Established (one of more of the following)	5		
Livedoid vasculopathy (pathology[d])			
Acute/chronic aPL-nephropathy (pathology[d])		PEC with severe features (<34w 0d) or PI with severe features (<34w 0d) with/without fetal death	3
Pulmonary hemorrhage (BAL or pathology[d])			
Myocardial disease (imaging or pathology)		PEC with severe features (<34w 0d) and PI with severe features (<34w 0d) with/without fetal death	4
Adrenal hemorrhage (imaging or pathology)			
D5. Cardiac Valve		**D6. Hematology**	
Thickening	2	Thrombocytopenia (lowest 20-130x10^9/L)	2
Vegetation	4		
Laboratory (aPL) domains and criteria[e]	**Weight**		
D7. aPL test by coagulation-based functional assay (lupus anticoagulant test [LAC])		**D8. aPL test by solid phase assay (anti-cardiolipin antibody [aCL] ELISA and/or anti-β_2-glycoprotein-I antibody [aβ_2GPI] ELISA [persistent])**	
Positive LAC (single – one time)	1	Moderate or high positive (IgM) (aCL and/or aβ_2GPI)	1
Positive LAC (persistent)	5	Moderate positive (IgG) (aCL and/or aβ_2GPI)	4
		High positive (IgG) (aCL or aβ_2GPI)	5
		High positive (IgG) (aCL and aβ_2GPI)	7

TOTAL SCORE
Classify as Antiphospholipid Syndrome for research purposes if there are
at least 3 points from clinical domains AND at least 3 points from laboratory domains

- Discussions critères diagnostiques vs à visée de recherche clinique
- SAPL séronégatif n'existe plus
- Sp ↗ et Se ↘

IMPLEMENTATION OF THE NEW ACR/EULAR CLASSIFICATION CRITERIA FOR ANTIPHOSPHOLIPID SYNDROME IN CLINICAL PRACTICE

Saša Čučnik Department Of Rheumatology, University Medical Centre Ljubljana, Ljubljana, Slovenia

…..First, according to the criteria, the thresholds for moderate (40-79 units) and high (>80units) aCL and anti-β2GPI antibodies should be based on a standardized ELISA and not on other assays.

…..Second, the correlation of numerical values between the moderate and high thresholds of ELISA and automated platforms varies considerably.

…..**Third, if there are no options other than using an automated platform, one of the recommendations is to identify and validate the moderate and high thresholds of the platform in correlation with ELISA.**

Accordingly, we decided to establish and validate our own thresholds for CLIA on the BIO-FLASH (Werfen, Inova Diagnostics) analyzer, which was introduced into our laboratory work as a replacement for in-house ELISA due to the IVDR.

We established moderate and high thresholds comparable to those of our in-house ELISAs, which have been used for more than two decades. We have used ROC analysis of CLIA results to calculate thresholds in chemiluminescence units (CU) that provide the same diagnostic specificity and sensitivity as the thresholds of the in-house ELISA.

IS002 / #897

ACADEMY OF AUTOIMMUNITY - AUTOIMMUNITY UP-TO-DATE
17-05-2024 12:15 - 17:15

REGULATORY T CELLS AND AUTOIMMUNITY.

Lecture Title:

Mitesh Dwivedi
C. G. Bhakta Institute Of Biotechnology, Uka Tarsadia University, Bardoli, India

Abstract Body: Regulatory T cells (Tregs) are critical for the maintenance of immune cell homeostasis. Treg cells maintain order in the immune system by enforcing a dominant negative regulation. Treg cells can target both innate and acquired immunity by modulating various immune cells including neutrophils, monocytes, antigen-presenting cells, B cells, and T cells. Treg cells have become the emerging field of interest as their altered numbers and dysfunction can lead to devastating human diseases including various autoimmune diseases. Here we shall discuss the different types of Treg cells, their distinct immunosuppressive mechanisms, role of Treg cell markers and implications of Treg cells in inducing autoimmunity.

IS003 / #900

ACADEMY OF AUTOIMMUNITY - AUTOIMMUNITY UP-TO-DATE
17-05-2024 12:15 - 17:15

PRIMARY BILIARY CHOLANGITIS (PBC)-A CLASSICAL AUTOIMMUNE DISEASE.

Lecture Title:

Ehud Zigmond
Liver Diseases Center, Sheba Medical Center, Ramat Gan, Israel

Abstract Body: Primary biliary cholangitis (PBC) is a prototypic autoimmune liver disease characterized by female predominance, destructive lymphocytic cholangitis and specific anti-mitochondrial antibodies (AMAs) and T cells targeted at well-defined mitochondrial autoantigens - primarily the E2 subunit of the pyruvate dehydrogenase complex E2 (PDC-E2). The etiology of PBC is unclear, and involves a combination of environmental, infectious, genetic, epigenetic, metabolic and immunological factors. There is a debate in the hepatologists community weather the break of immunological tolerance initiating the disease is caused due to primary dysfunction of the biliary epithelium or due to a hyper activity of the immune system directed against the biliary epithelium that serve as an innocent bystander. Interestingly, immunosuppression, including corticosteroids has limited therapeutic effect in PBC while drugs that presumably affect bile metabolism like Ursodexoycholic acid, FXR agonists and PPAR agonists proved to be beneficial. Interestingly, new evidences suggest that an immune modulatory mechanism of these medications may be responsible for the favorable effect on disease activity. The importance of the innate immune system in the pathogenesis of PBC is largely unknown. Intriguingly, many genes revealed by genome-wide association studies (GWAS) to be associated with PBC are expressed specifically by innate immune cells. Several of these genes including IL12A, IL12RB2, STAT4, IRF5, CD80, IL7R and SPIB are known to be important for the differentiation and function of macrophages and dendritic cells. Our lab has recently explored the role of macrophages and specific type of dendritic cells in a pre-clinical model of PBC and revealed a crucial role for these cells in disease development. These results may pave the road for the development of new immune-based and cell specific therapeutic modalities for PBC patients not responding to current therapies.

https://info.kenes.com/Flip/AUTO24_AUTOIMMUNITY%202024%20ABSTRACTS%20E-BOOK/