POLYANALYTIC
Analyses médicales

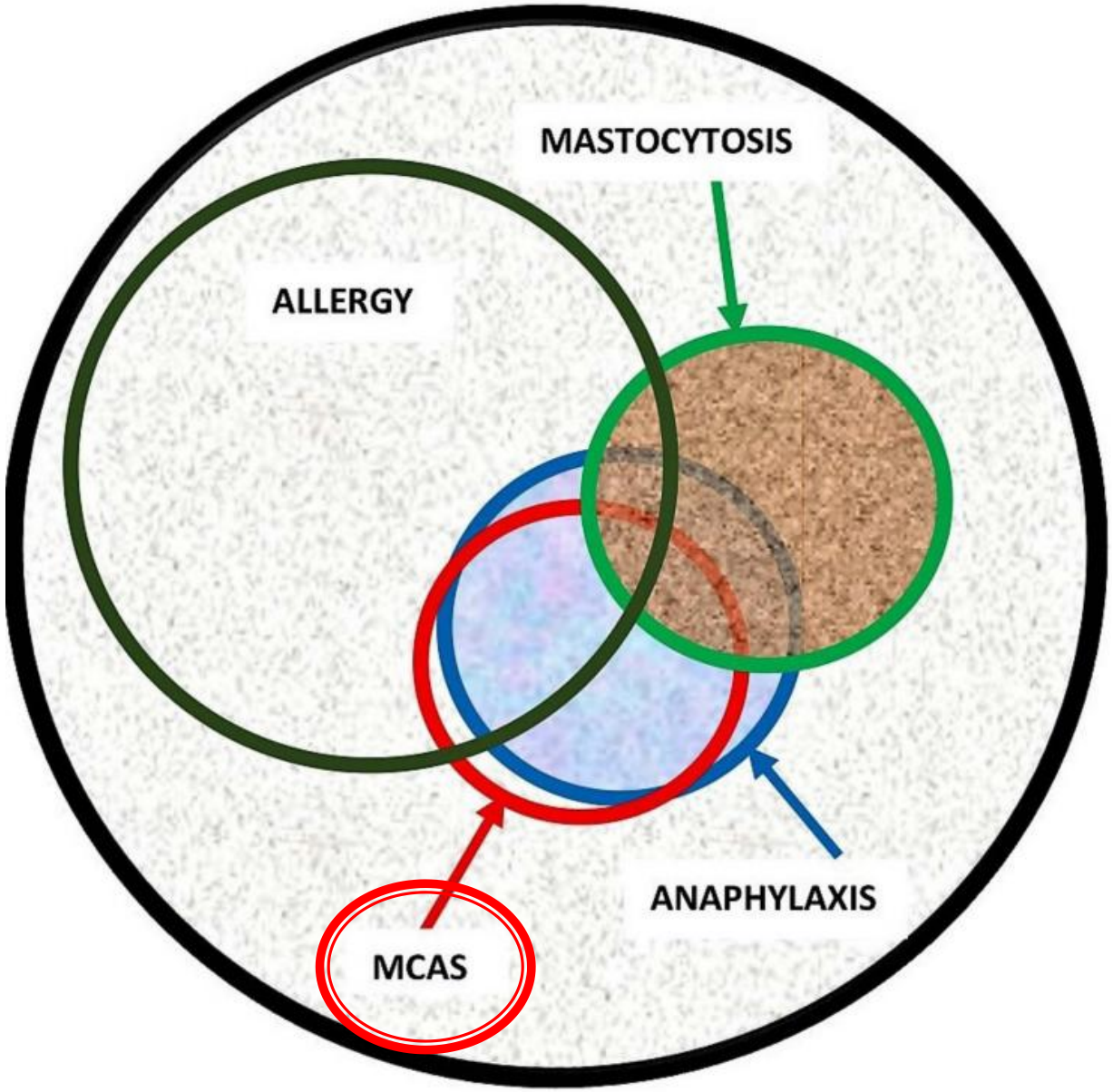
Le dosage de la tryptase sérique:

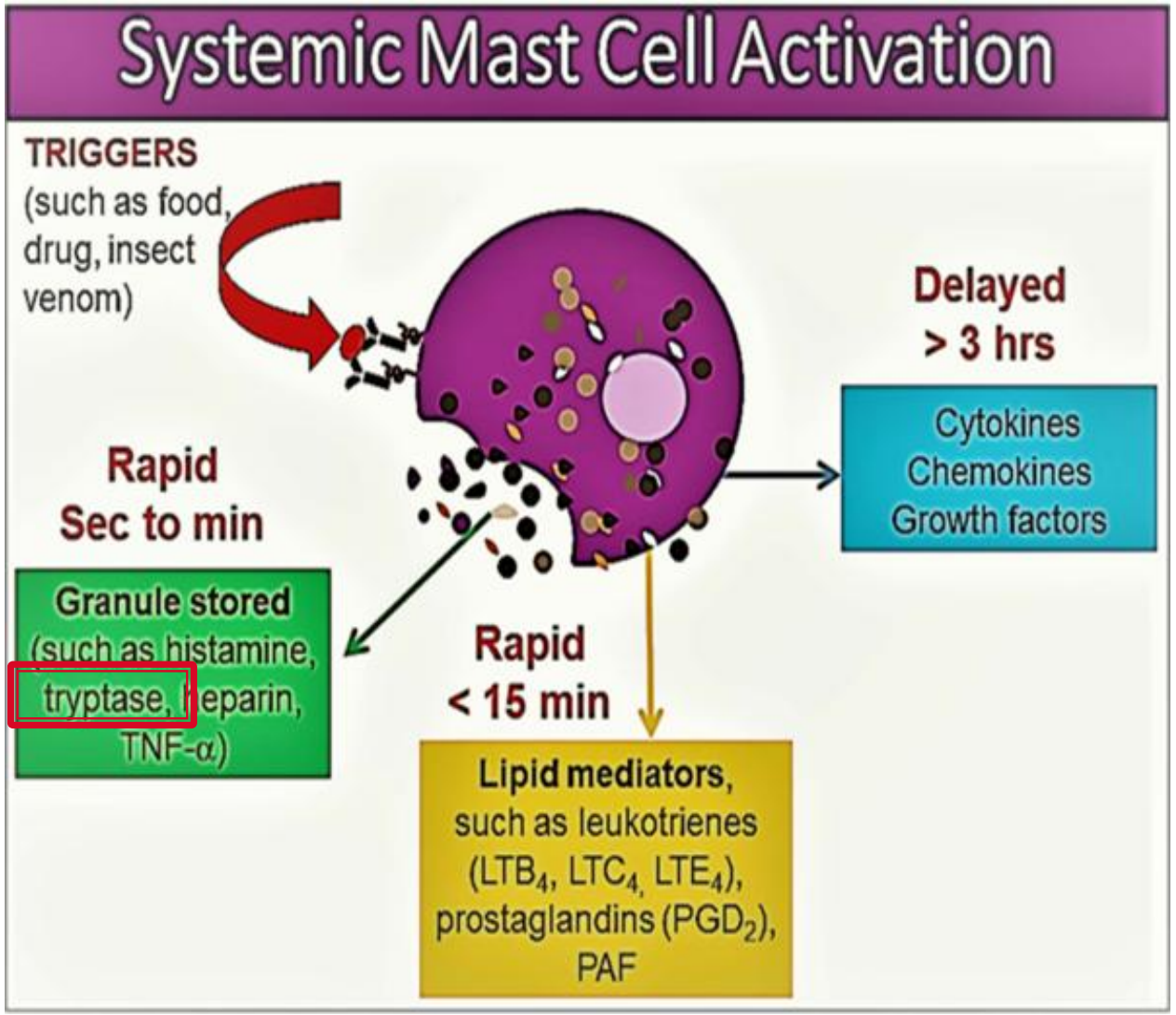
Du syndrome d'activation mastocytaire (MCAS) à la maladie clonale mastocytaire (CMD)

Dr Eric Dayer, FMH –FAMH Immunology
Polyanalytic Immunology lab, Lausanne
ARL Vevey, le 9.9.2025

PLAN

- **Anaphylaxie** (syndrome clinique) et l'apport du labo (2 dosages de tryptase)
- Définitions, physiologie mastocytaire et valeurs normales de **tryptase**
- Concept d'activation mastocytaire (**MCAS**)
- Concept de maladie clonale mastocytaire (**CMD**)
- Suivi d'évolution de mastocytose cutanée «indolente» (**ISM**)
- Recherche de **CMD dans les cas d'hypersensibilité aux venins** (REMA score + détection de la mutation cKit même si valeur de tryptase normale)





Gülen T et al.-
J Allergy Clin Immunol Pract
2021;9:3918,28)

ANAPHYLAXIE

Increase of Basal tryptase

- : **Mastocytosis ?:**
- **>20 µg/L, x2**
- **c-Kit mutation (D816V)**

PBM/ Hematologist

MCAS

(Mastcell Activatioin syndrom)

- **MCAS? TRYPT au pic ≥1,2x TRYP basal +2 µg/L**

CMD

(Clonal Mastcell Disease)

CMD with intermediate or low tryptase?

= HAT and REMA score + c-Kit

Anaphylaxie: un risque clinique vital

pas si simple à définir cliniquement si :
hypotension ou bronchospasme seule,
en l'absence d'atteinte cutanée

- En aigu:
  - Perfusion de solution hydrosaline
  - injection d'adrénaline
  - prélèvement sanguin

  (confirmation à posteriori de la dégranulation mastocytaire: tryptase)

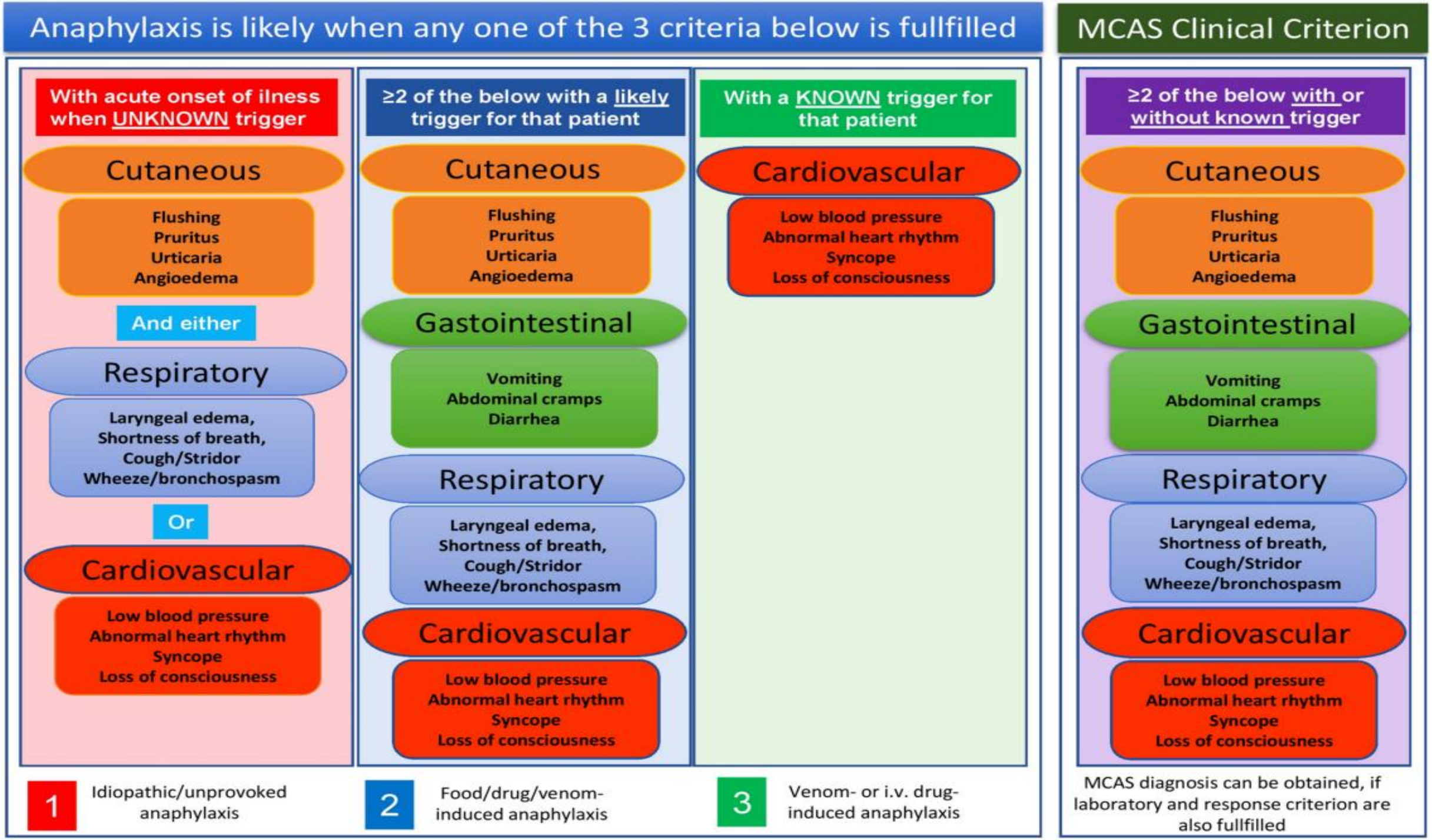
Grade I	Grade II		Grade III		
Local reaction (No systemic Reaction)	Mild to moderate systemic reaction (Systemic reaction without cardiovascular and/or respiratory involvement)		Severe systemic reaction = anaphylaxis (Systemic reaction with cardiovascular and/or respiratory involvement)		
Grade I	**Grade II A**	**Grade II B**	**Grade III A**	**Grade III B**	**Grade III C**
Local reactions: e.g. •Redness •Swelling •Pruritus	Skin: e.g. •Urticaria •Angioedema •Flush or GI-Tract: e.g. •Abdom. pain •Vomiting •Diarrhoea	Skin plus GI-Tract: e.g. •Urticaria •Angioedema •Flush plus e.g. •Abdom. pain •Vomiting •Diarrhoea	Respiratory: •Cough •Wheezing •Stridor or Cardio-vascular: •Tachycardia •Lowered blood pressure	Severe Respiratory: e.g. •Objective dyspnoea •Accessory muscles and/or Severe Cardio-vascular: •Shock	Reanimation: •Respiratory arrest and/or •Cardio-vascular arrest

B. Niggemann and K. Beyer Allergy 71 (2016) 135–136

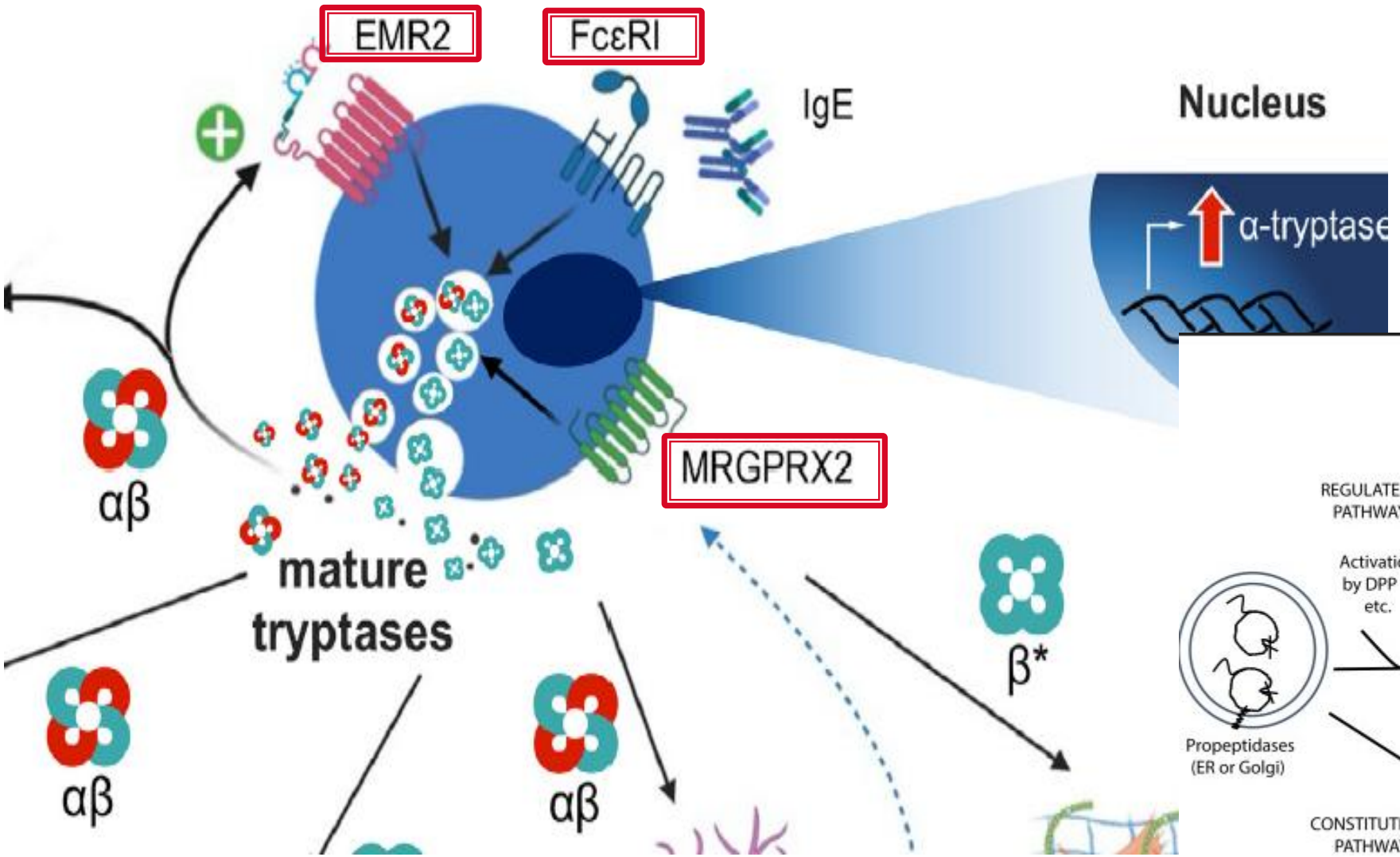
Cardona et al. World Allergy Organization Journal (2020) 13:100472
http://doi.org/10.1016/j.waojou.2020.100472

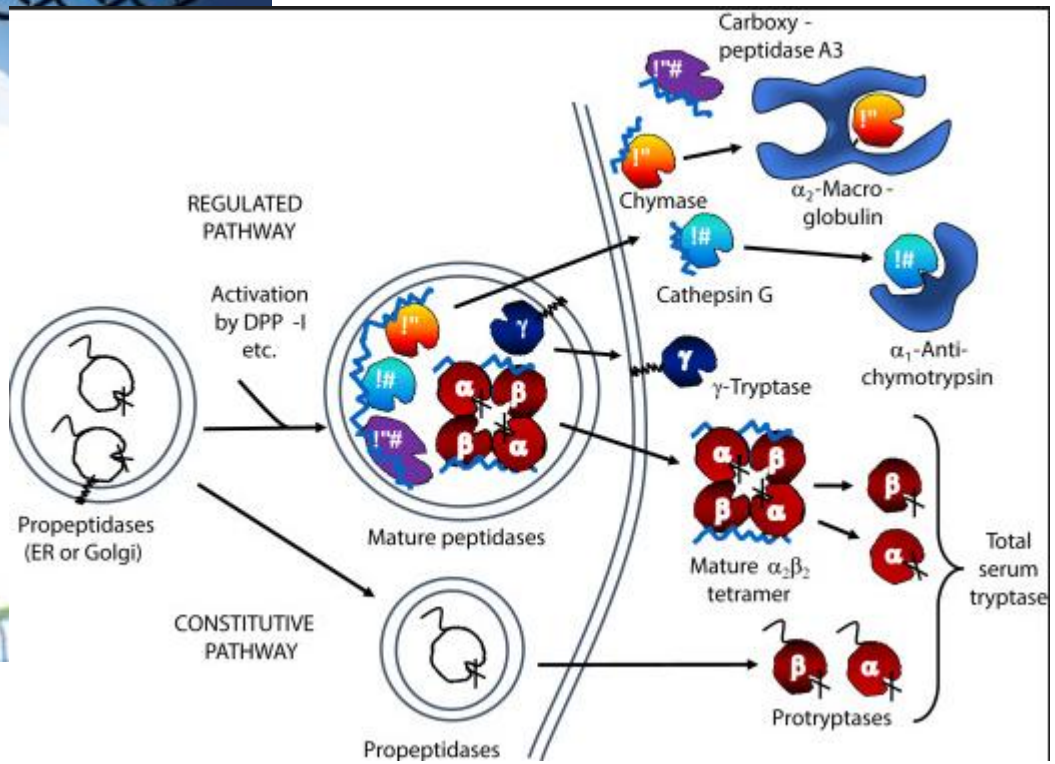
WORLD ALLERGY ORGANIZATION JOURNAL

POSITION PAPER
World Allergy Organization Anaphylaxis Guidance 2020


Anaphylaxis is likely when any one of the 3 criteria below is fullfilled
With acute onset of ilness when UNKNOWN trigger
Cutaneous
Flushing
Pruritus
Urticaria
Angioedema
And either
Respiratory
Laryngeal edema,
Shortness of breath,
Cough/Stridor
Wheeze/bronchospasm
Or
Cardiovascular
Low blood pressure
Abnormal heart rhythm
Syncope
Loss of consciousness
≥2 of the below with a likely trigger for that patient
Cutaneous
Flushing
Pruritus
Urticaria
Angioedema
Gastointestinal
Vomiting
Abdominal cramps
Diarrhea
Respiratory
Laryngeal edema,
Shortness of breath,
Cough/Stridor
Wheeze/bronchospasm
Cardiovascular
Low blood pressure
Abnormal heart rhythm
Syncope
Loss of consciousness
With a KNOWN trigger for that patient
Cardiovascular
Low blood pressure
Abnormal heart rhythm
Syncope
Loss of consciousness
1
Idiopathic/unprovoked anaphylaxis
2
Food/drug/venom-induced anaphylaxis
3
Venom- or i.v. drug-induced anaphylaxis
MCAS Clinical Criterion
≥2 of the below with or without known trigger
Cutaneous
Flushing
Pruritus
Urticaria
Angioedema
Gastointestinal
Vomiting
Abdominal cramps
Diarrhea
Respiratory
Laryngeal edema,
Shortness of breath,
Cough/Stridor
Wheeze/bronchospasm
Cardiovascular
Low blood pressure
Abnormal heart rhythm
Syncope
Loss of consciousness
MCAS diagnosis can be obtained, if laboratory and response criterion are also fullfilled

Syndrome d'activation mastocytaire (MCAS) ?





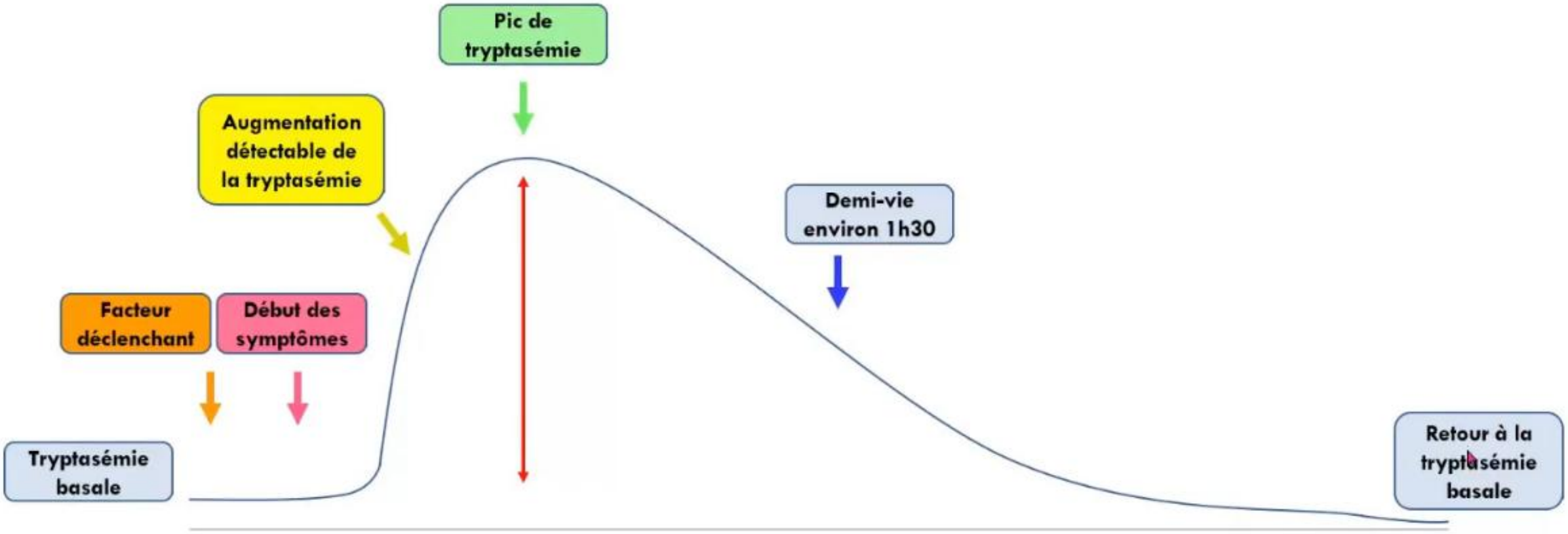
La tryptase

- Serine protéase sérique des mastocytes (+ basophiles)
- Hétérodimers alpha + béta circulants suite à la dégranulation des mastocytes
- Béta (± alpha): produite de manière constitutive = charge individuelle
- Taux individuel variable représente la masse mastocytaire d'un individu
- Fonction de l'hétérogénéité génétique: hyper alpha tryptasémie (HAT)

- Dosage global des 2 formes dans le FEIA
- Augmentation dans 3 situations:
  - 1. **HAT** (5 % de la population)
  - 2. **Mastocytose:** augmentation clonale du nombre de mastocytes (surtout mutation du cKit)
  - 3. **Maladie rénale chronique** (catabolisme)

- Valeur seuil: variable en fonction de l'usage:
  - 8.2 µg/L (95 ème percentile)
  - <15 µg/L : exclu HAT si pas de symptomes

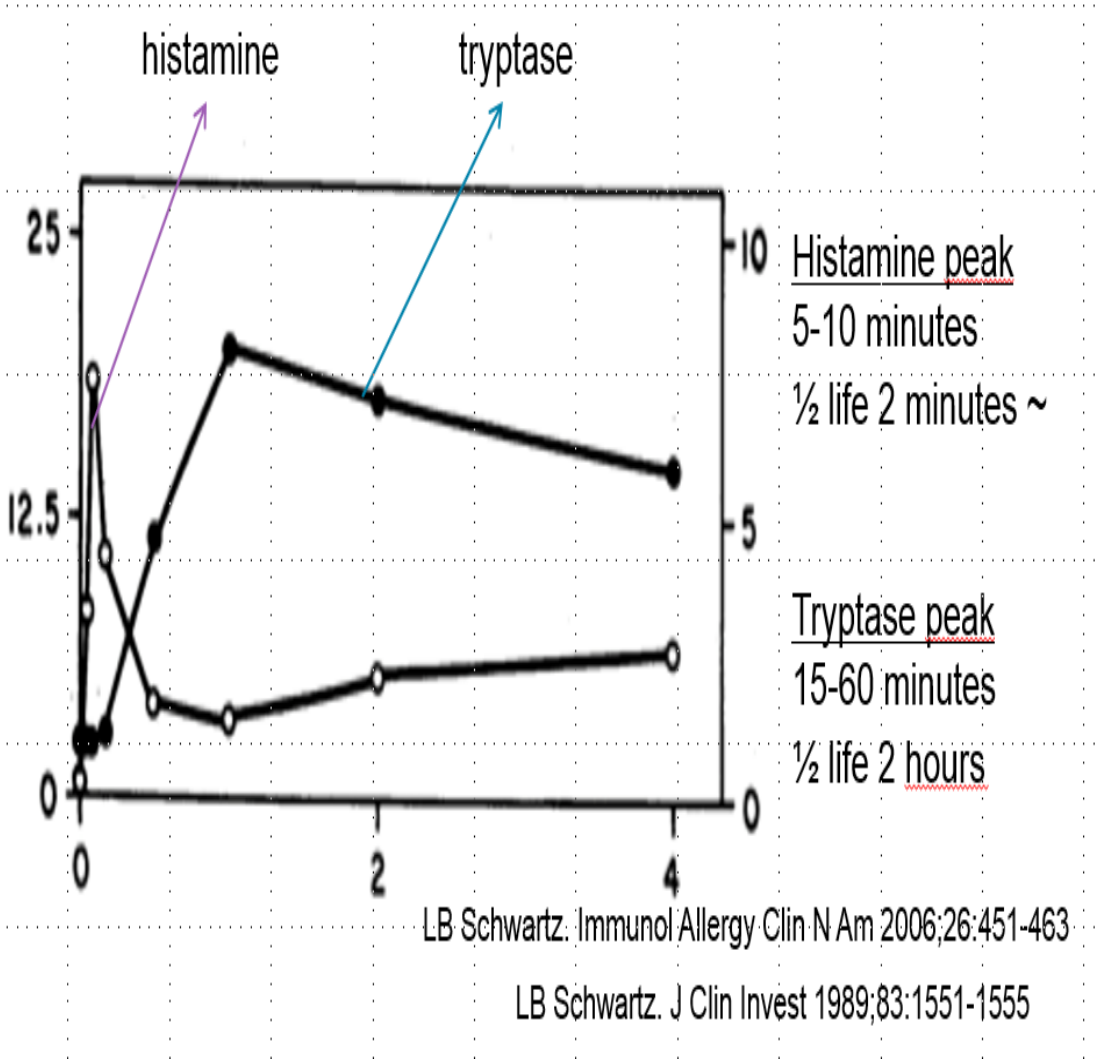
Tryptase: de la physiologie à la mesure *in vitro*



Some Potential Mast Cell Activation Triggers To Be Avoided or Used Cautiously

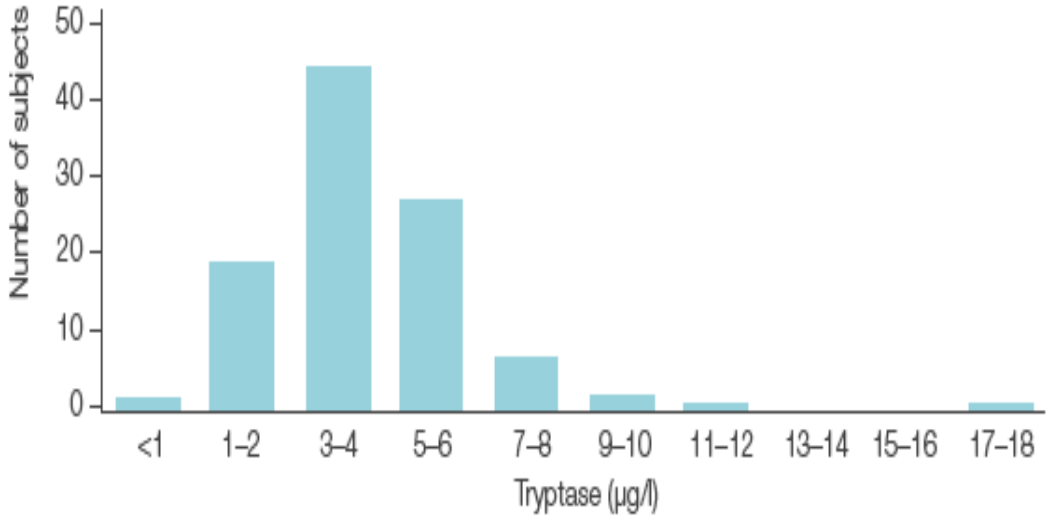
ACE inhibitors	Histamine-rich foods	Narcotics	Temp. Δ (esp. sudden)
β-blockers	Histamine-releasing foods	Niacin	Ultraviolet radiation
Ethanol	Mechanical irritation	NSAIDs	

Evolution de la tryptase après anaphylaxie et taux normaux de tryptase sérique



LB Schwartz. Immunol Allergy Clin N Am 2006;26:451-463

LB Schwartz. J Clin Invest 1989;83:1551-1555



Distribution of tryptase concentration in a population of 124 healthy individuals as measured with ImmunoCAP Tryptase test:*
- Geometric mean: 3.4 µg/l
- 95 upper percentile: 11.0 µg/l

Sérum Tryptase depuis 35 ans mais les valeurs normales ont changé! Norme 2022 (95th percentile: 8.2 ug/L)

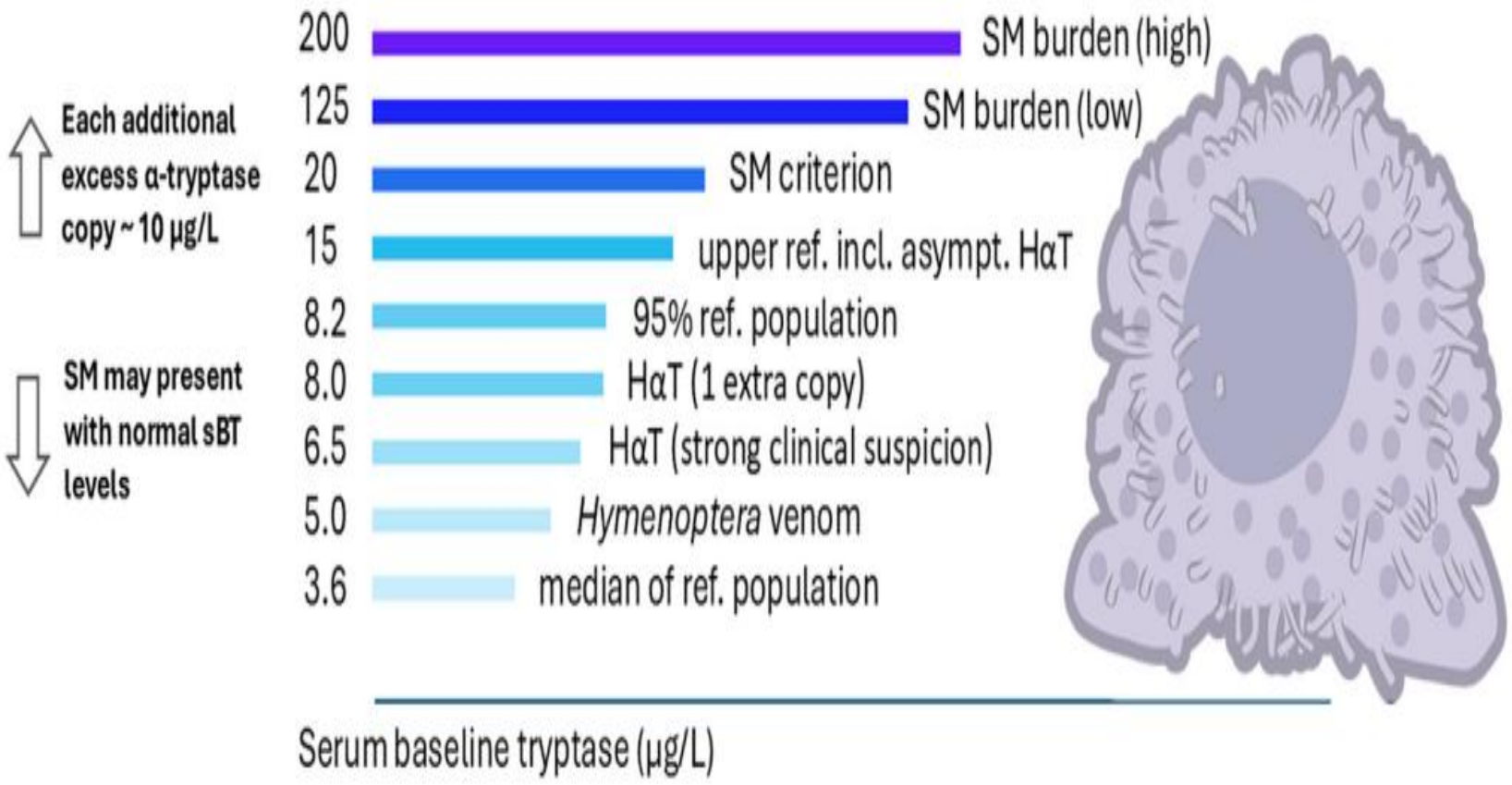


Figure 2. Main decision points for serum baseline tryptase in mast cell-related conditions and diseases. Unlike serum acute tryptase which is a transient increase in peripheral blood tryptase and cannot be interpreted per se, serum baseline tryptase has a defined interval of reference values. Reference values overlap with hereditary α-tryptasemia results,

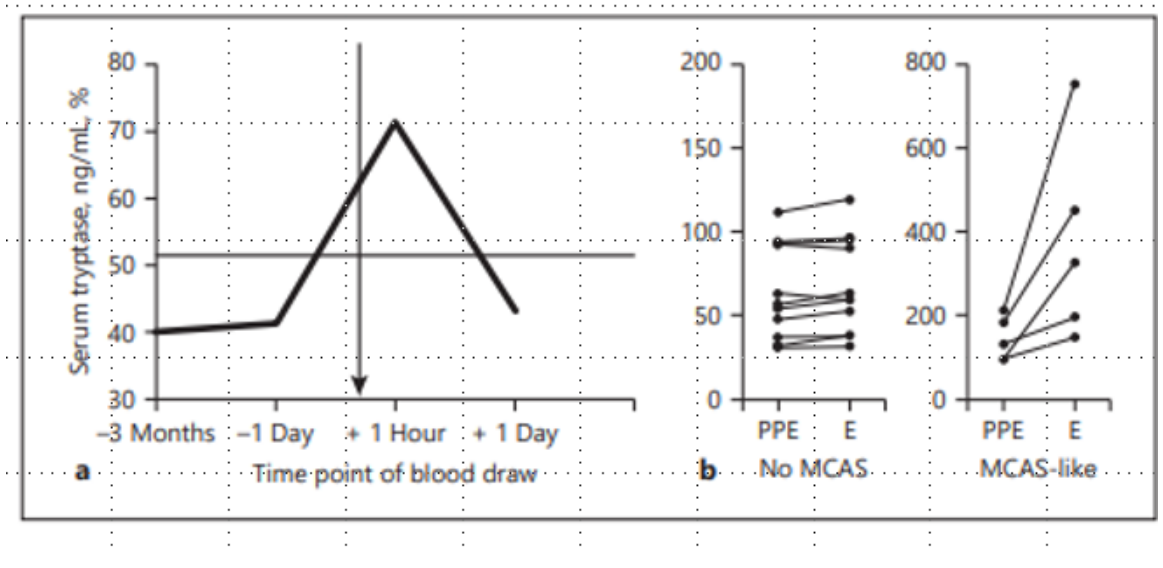
Autres biomarqueurs et MCAS?

Table 3. Mast Cell Mediators recommended as Markers of Systemic MCA in Practice.

Recommendation Level	Validated Diagnostic Thresholds (Increase from Baseline) Available
Recommended as First Line Standard:	
Tryptase (serum)	yes: plus 20%+2 equation
Recommended as Alternative or Confirmatory:	
Histamine metabolites (urinary)	no
Prostaglandin D_2 metabolites (urinary)	no
Potentially Useful or Under Development:	
Histamine (plasma)	no
Diamine oxidase (DAO) *	no
Soluble IgE receptor alpha chain	no
Not Recommended:	
Heparin	no
Chymase	no
Chromogranin B	no
Bradykinin	no
Stem cell factor	no
Interleukins	no
Chemokines	no
Basogranulin	no
Platelet activating factor (PAF)	no

*So far it remains unclear whether DAO is expressed by or released from mast cells.

Definition consensuelle du MCAS



International Archives of Allergy and Immunology

Tryptase basale pour confirmer l'évènement: >24H

Valeur seuil individualisée

Syndrome d'activation mastocytaire (MCAS):

Tryptase aigue >120% Tryptase basale + 2 μg/L

Clinical Immunology – Review Article

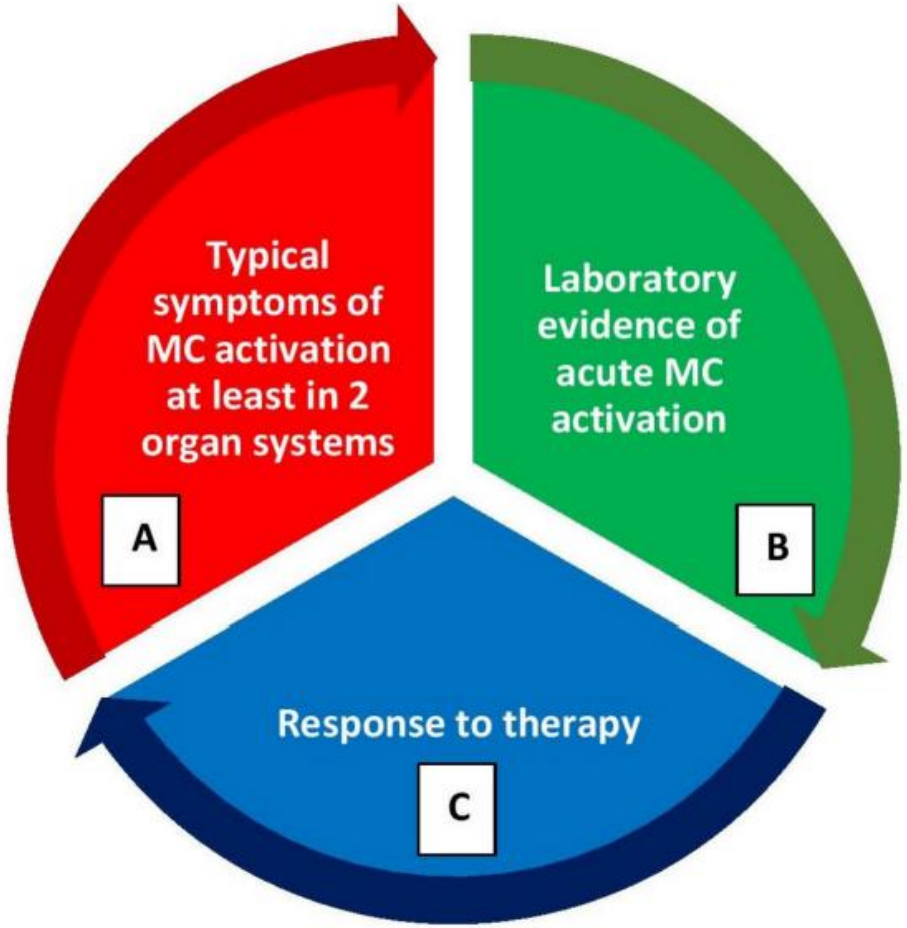
Int Arch Allergy Immunol 2019;180:44–51
DOI: 10.1159/000501079

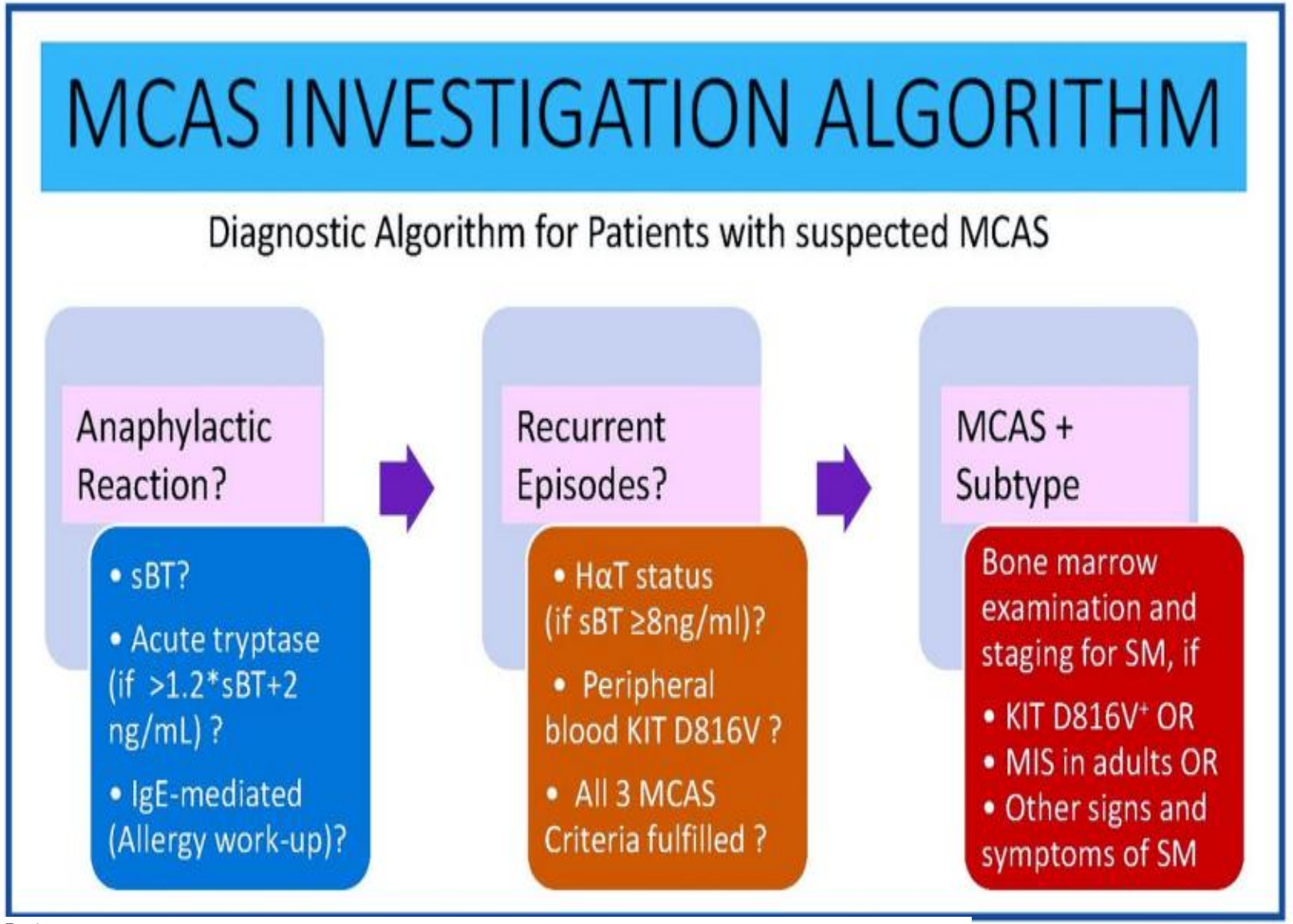
Received: April 5, 2019
Accepted after revision: May 20, 2019
Published online: June 28, 2019

Why the 20% + 2 Tryptase Formula Is a Diagnostic Gold Standard for Severe Systemic Mast Cell Activation and Mast Cell Activation Syndrome

Peter Valent[a] Patrizia Bonadonna[b] Karin Hartmann[c] Sigurd Broesby-Olsen[d]
Knut Brockow[e] Joseph H. Butterfield[f] Massimo Triggiani[g] Jonathan J. Lyons[h]
Joanna N.G. Oude Elberink[i] Michel Arock[j] Dean D. Metcalfe[h] Cem Akin[k]

MCAS Mast Cell Activation Syndrome





Review

A Puzzling Mast Cell Trilogy: Anaphylaxis, MCAS, and Mastocytosis

Theo Gülen [1,2,3,4]

Diagnostics **2023**, *13*, 3307. https://doi.org/10.3390/diagnostics13213307

[1] Department of Respiratory Medicine and Allergy, Karolinska University Hospital Huddinge, 141 86 Stockholm, Sweden; theo.gulen@regionstockholm.se

Sous types de MCAS et conditions associées

- Tryptasémie héréditaire (15-50 μg/L, risque +/-)
- Mastocytose cutanée (5-15, risque +)
- Mastocytaire cutanée indolente (ISM) (15-200, risque ++)
- Mastocytose systémique (100-1000, risque +)
- Syndrome myélodysplasique (10-50, risque -)

MAST CELL ACTIVATION SYNDROME (MCAS)

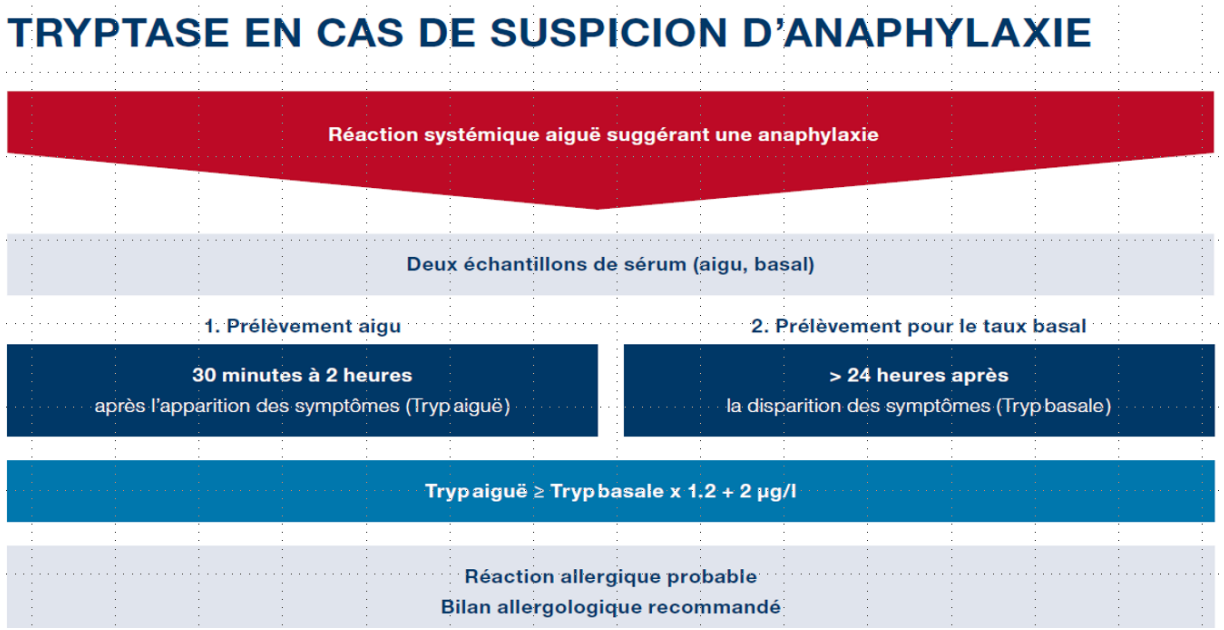
Table 2. Classification of MCAS

Variant of MCAS	Main diagnostic features
Primary MCAS (clonal MCAS)*	The *KIT* D816V mutation is detected, and MCs aberrantly display CD25 in most cases (a) with confirmed mastocytosis (CM or SM)** (b) with only two minor SM criteria**
Secondary MCAS	An IgE-mediated allergy, another hypersensitivity reaction, or another immunologic disease that can induce MCA, and thus, MCAS is diagnosed, but no neoplastic MC or *KIT* D816V is found***
HαT+ MCAS (familial/ hereditary MCAS)	Criteria to diagnose MCAS are met, no related allergy or underlying clonal MC disease is detected, and the HαT test is positive****
Mixed forms of MCAS	MCAS criteria are fulfilled, and patients are suffering from two or more of the following: (a) CM or SM; (b) overt allergy/atopic disease; (c) a known genetic predisposition like HαT
Idiopathic MCAS	Criteria to diagnose MCAS are met, but no related reactive disease, no IgE-dependent allergy, no HαT, and no neoplastic/clonal MC are found***

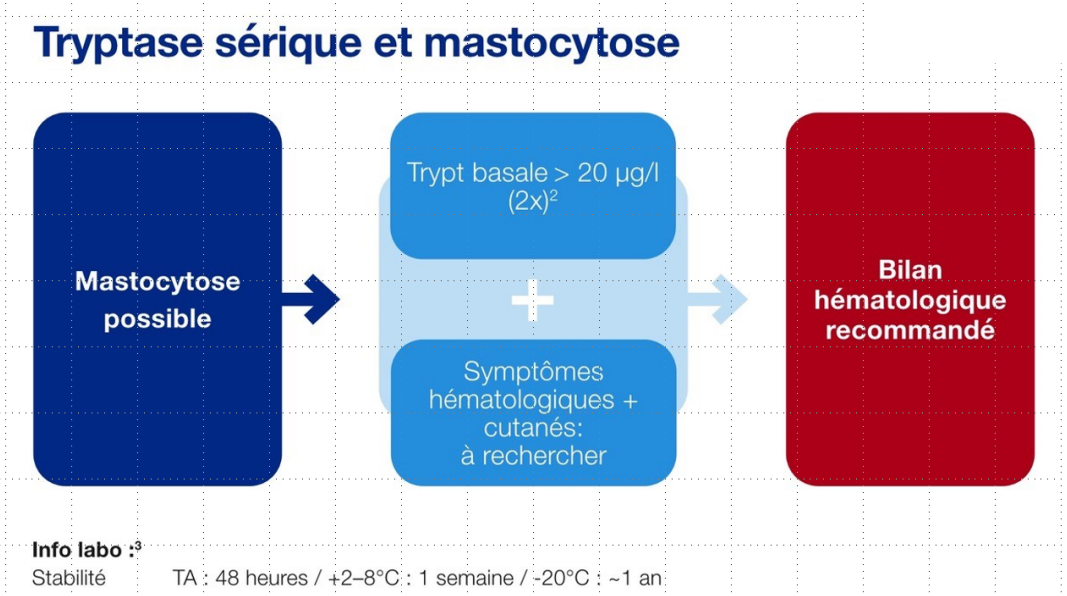
Serum Tryptase : sa valeur ajoutée et ensuite?

1. Dosages aigu et basal:

2 EDTA tubes: un (entre 30 min.- 6 heures après déclencheur) et un après >24 heures = MCAS?



2. If Si la valeur basale >20 µg/L: **c-KIT mutation dans le sang EDTA**



3. Alpha Hypertryptasémie?: **Tube EDTA en externe pour ddPCR**

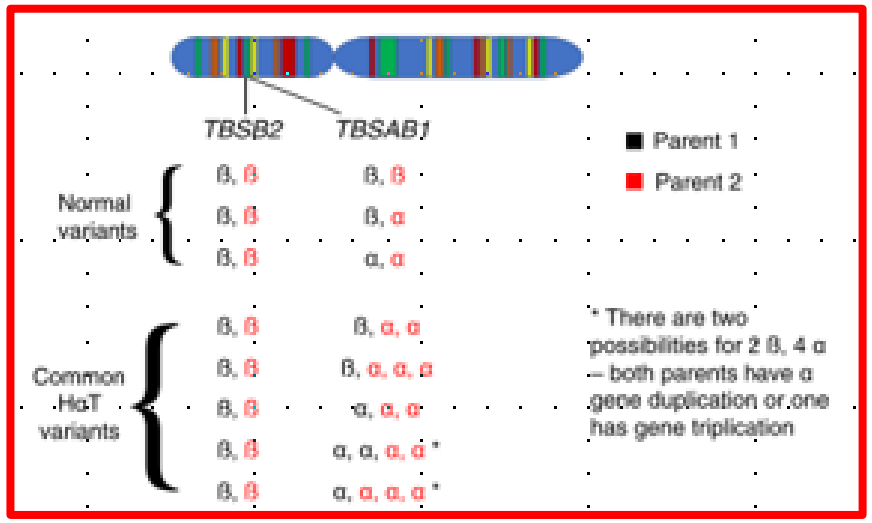
HAT³ (hereditäre α-Tryptasämie)

POLYANALYTIC
Analyses médicales

Hypertryptasémie alpha (HAT)

Clin Experimental Allergy, First published: 18 January 2023, DOI: (10.1111/cea.14264)

Hereditary Alpha-Tryptasemia (HAT) JACI 2021



Clinical Management Review

The Genetic Basis and Clinical Impact of Hereditary Alpha-Tryptasemia

Kathleen T. Luskin, MD[a], Andrew A. White, MD[a], and Jonathan J. Lyons, MD[b] *La Jolla, Calif; and Bethesda, Md*

- α- and β-tryptases on X 16.
- Each parental haplotype includes one β-tryptase from TPSB2 and either an α- or β-tryptase from TPSAB1.
- HαT occurs when there is more than one TPSAB1 copy encoding α-tryptase on a single allele, and increased copy number can be inherited by 1 or both parents

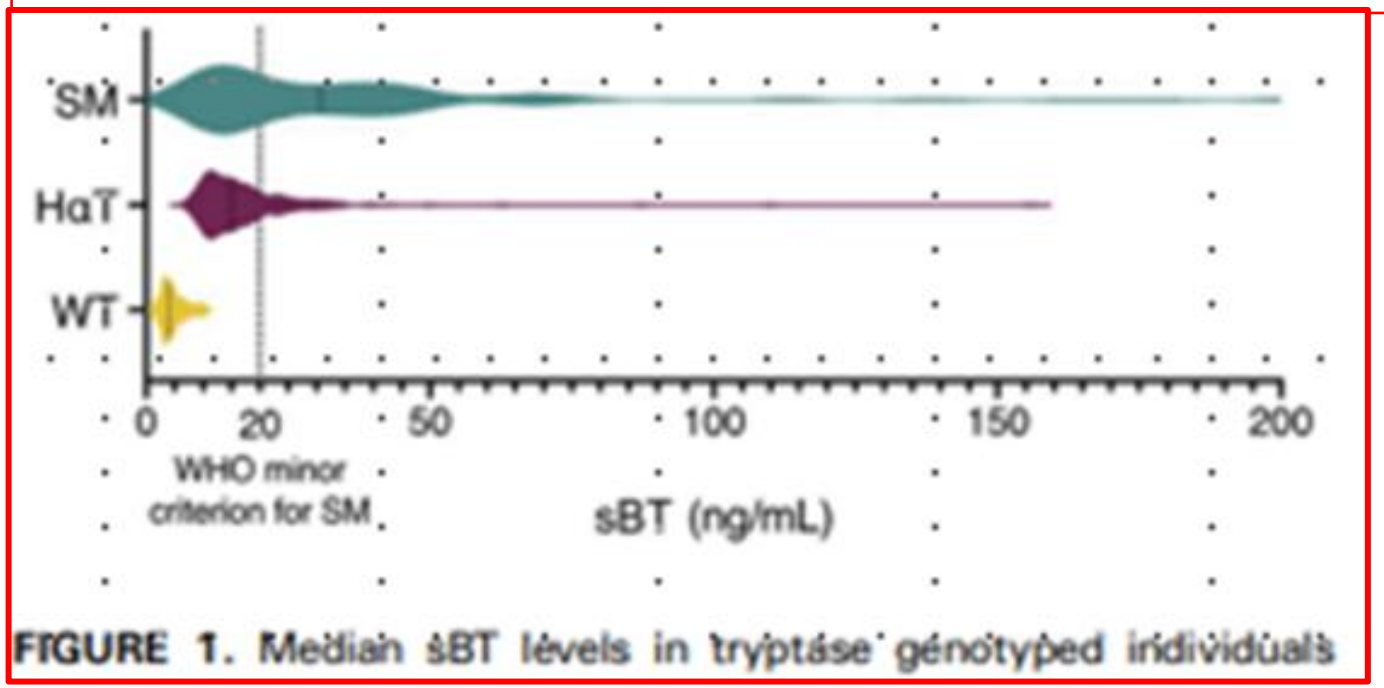


FIGURE 1. Median sBT levels in tryptase-genotyped individuals

Basal serum tryptase levels and αTryptase genotype numbers of alleles

Table 1 Tryptase genotypes and corresponding BST levels

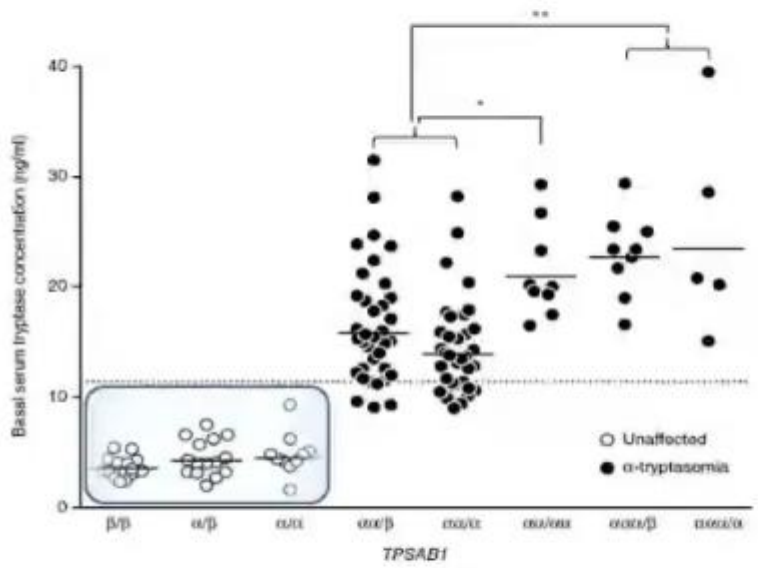
Additional *TPSAB1** copy number	0	1	2	3	4
Tryptase genotypes†	β,β/β,β; α,β/β,β; α,β/α,β; β,β,β/α,β; β,β,β/β,β	αα,β/β,β; αα,β/α,β; αα,ββ/β,β; αα,ββ/α,β	αα,β/αα,β; ααα,β/β,β; ααα,β/α,β	ααα,β/αα,β	αααα,β/β,β; αααα,β/α,β
BST (ng/mL), median (range)	4.1 (0–14.4‡)	14.5 (7.5–31.5)	21.7 (14–39.5)	27.3 (23.4–40)	37 (25.5–62.7)

* Gene replications encoding β-tryptases may potentially arise from *TPSAB1* or *TPSB2*. † Tryptase genotypes include coding sequences at *TPSAB1* and *TPSB2*. ‡ Elevated BST without increased *TPSAB1* copy number encoding α-tryptase has not been observed to segregate within families and is likely a result of an occult indolent clonal myeloid process

Wu R & Lyons JJ, *Curr Allergy Asthma Rep* 2021

https://bst-calculater.niaid.nih.gov/

A partir de 2014: découverte α-tryptasémie héréditaire (HαT)
anomalie du nombre d'allèles alpha

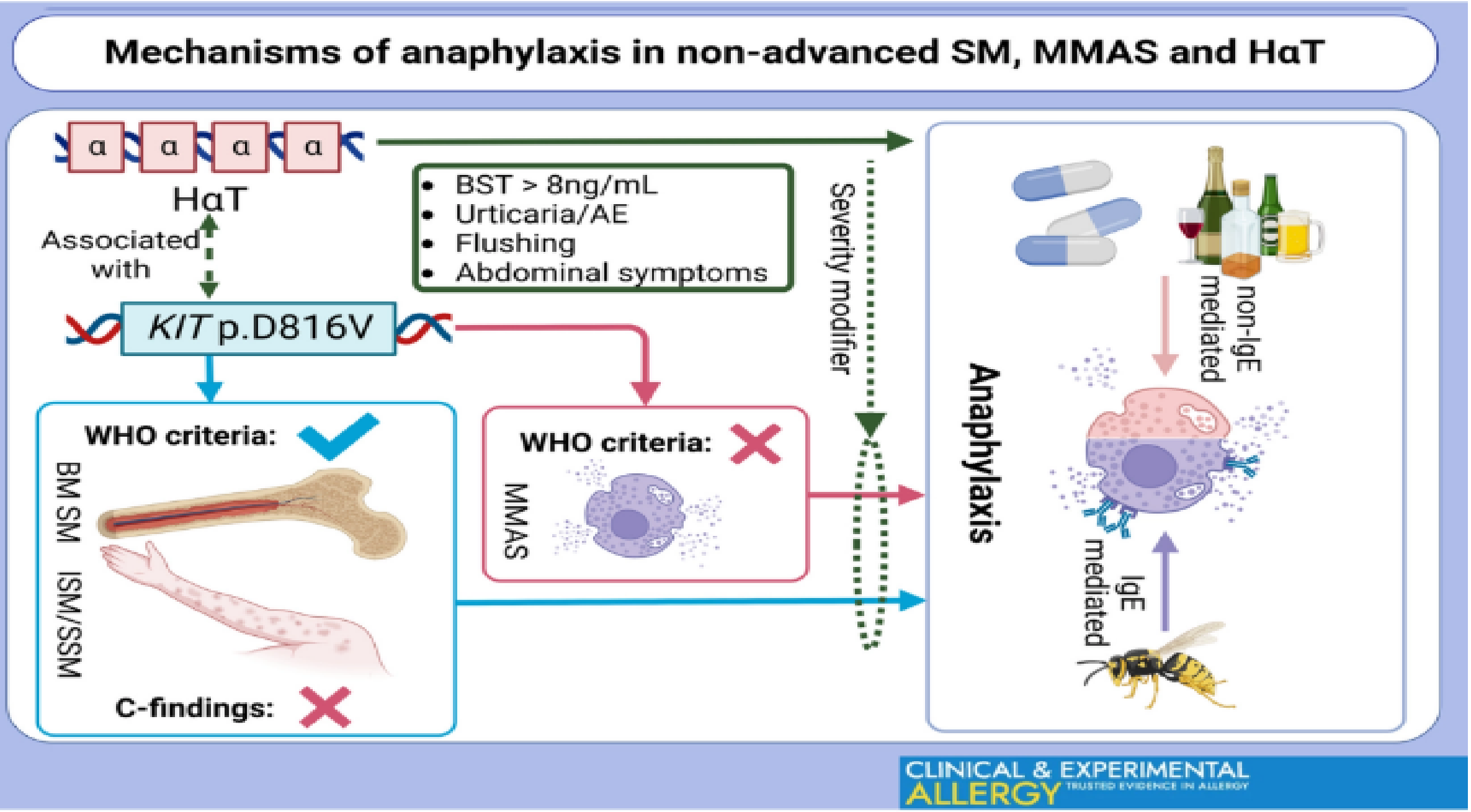


- **Prévalence**: **4-8% en population générale**
- **Cause**: allèles surnuméraires tryptase alpha
- **Transmission**: autosomique dominante à pénétrance incomplète
- **Clinique**: variable, de rien à tout
- **Biologie:** tryptase basale > 8 µg/L (exceptionnellement moins)
- **Diagnostic de certitude**: PCR digitale
- **Ce qui nous intéresse:**
  - **1 – risque accru d'anaphylaxie toutes causes confondues**
  - **2 – association possible avec pathologies mastocytaires: MCAS, mastocytose**
- **La HαT n'est pas par elle-même une maladie**

Lyons JJ *et al, J Allergy Clin Immunol* 2014 (May)
Sabato V *et al, J Allergy Clin Immunol* 2014 (June)
Lyons JJ *et al, Nat Genetics* 2016
Lyons JJ *et al, J Allergy Clin Immunol Pract* 2022

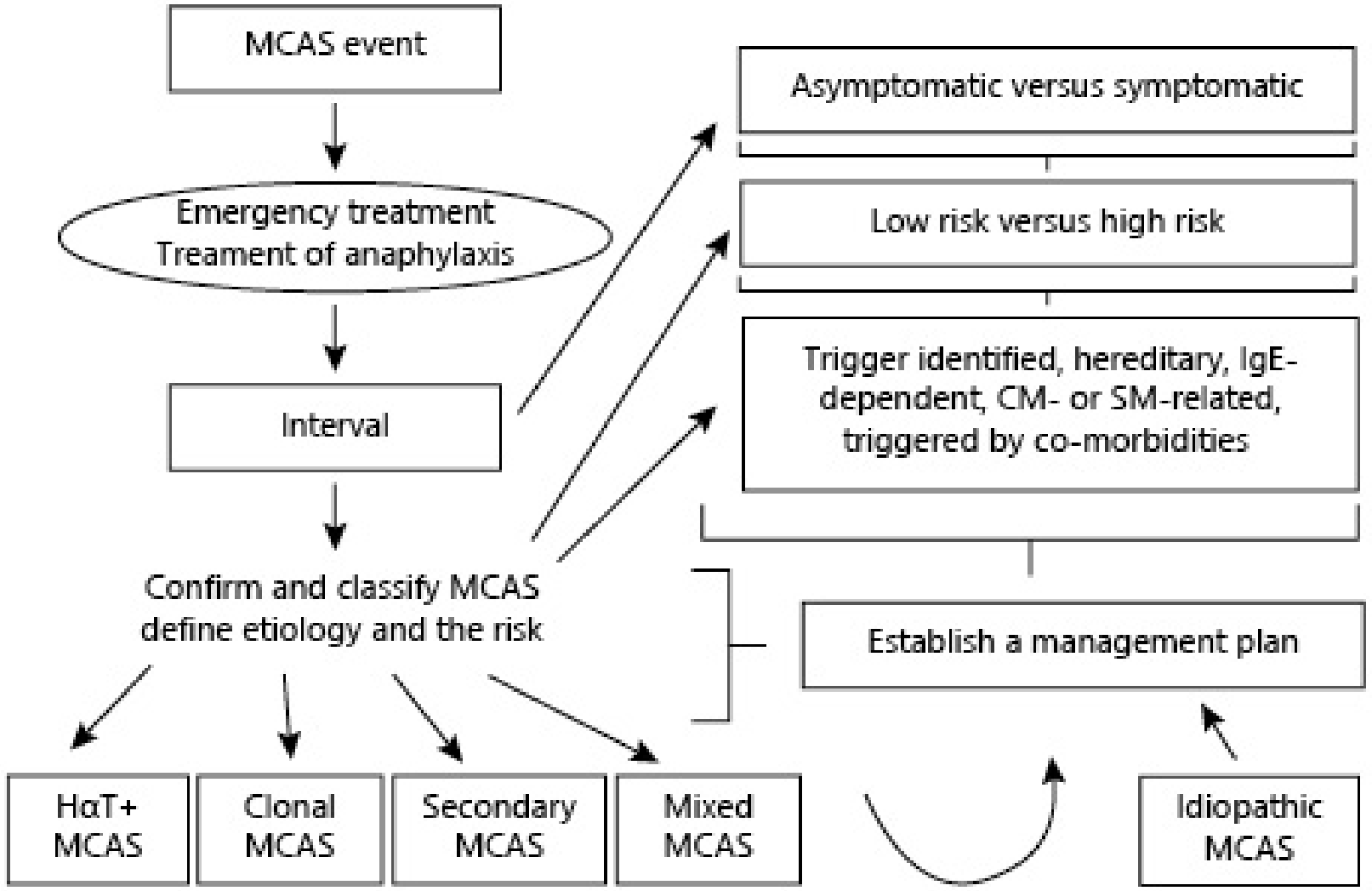
Lyons JJ, *Immunol Allergy Clin North Am* 2018; Robey RC, *J Allergy Clin Immunol* 2020; Sprinzl B, *IJMS* 2021; Chollet MB & Akin C, *J Allergy Clin Immunol* 2021; Valent P *et al, J Allergy Clin Immunol Pract* 2023

Mechanisms of anaphylaxis in non-advanced SM, MMAS and HαT



CLINICAL & EXPERIMENTAL ALLERGY
TRUSTED EVIDENCE IN ALLERGY

Prise en charge du syndrome d'activation mastocytaire



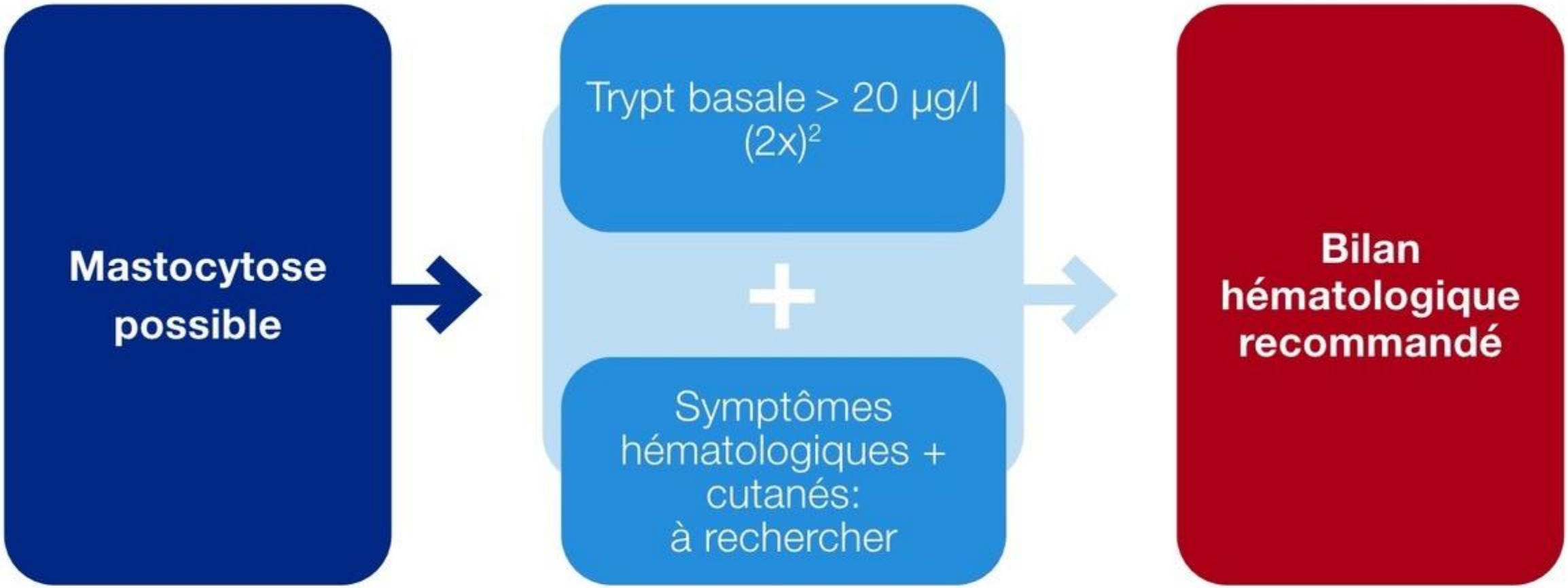
POLYANALYTIC
Analyses médicales

Maladie Clonale mastocytaire (CMD)

Clin Experimental Allergy, First published: 18 January 2023, DOI: (10.1111/cea.14264)

POLYANALYTIC
Analyses médicales

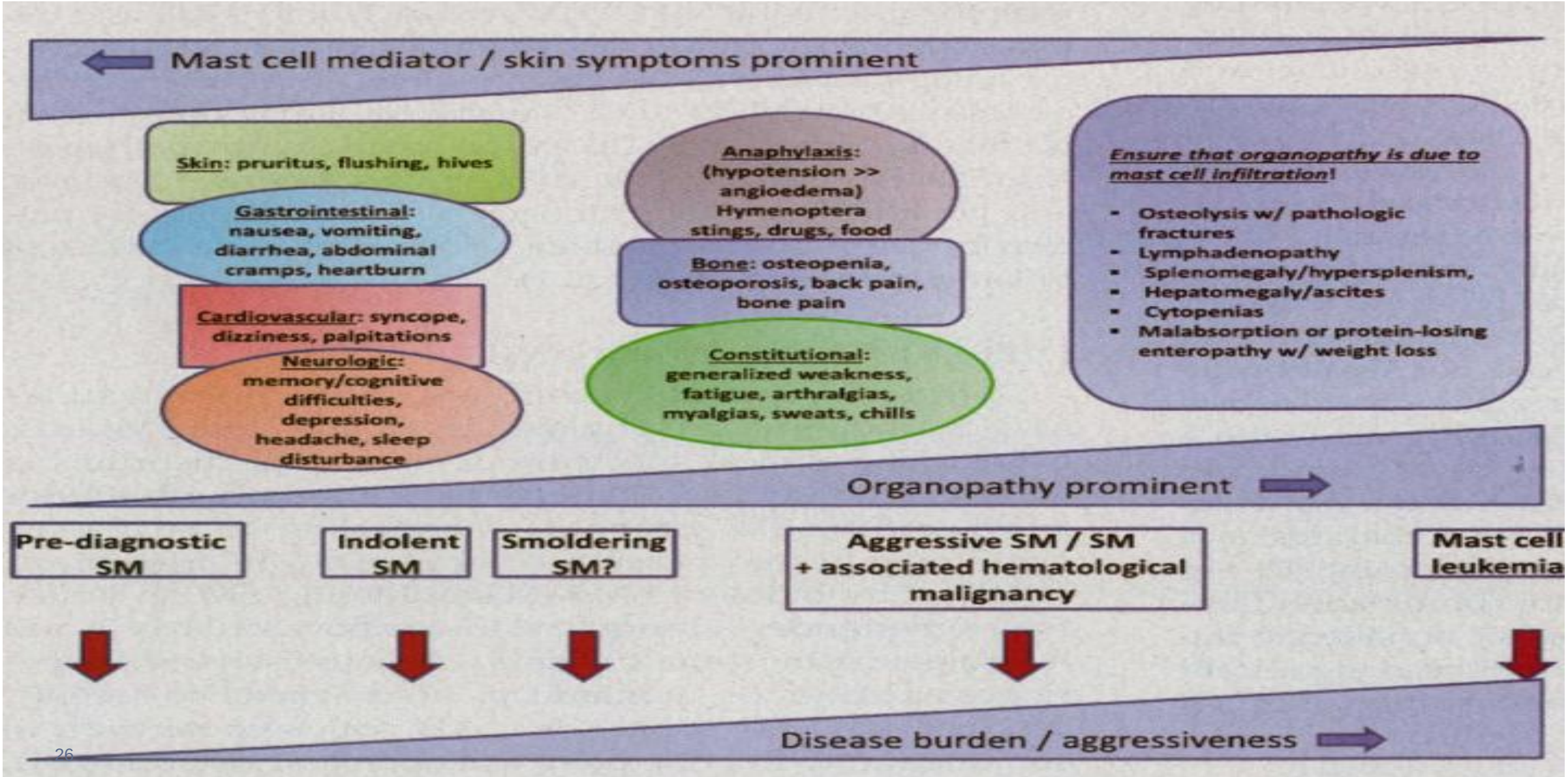
Tryptase sérique et mastocytose



Info labo :[3]

Stabilité TA : 48 heures / +2–8°C : 1 semaine / -20°C : ~1 an

Clonal mast cell disease (CMD) et les sous-types de mastocytoses

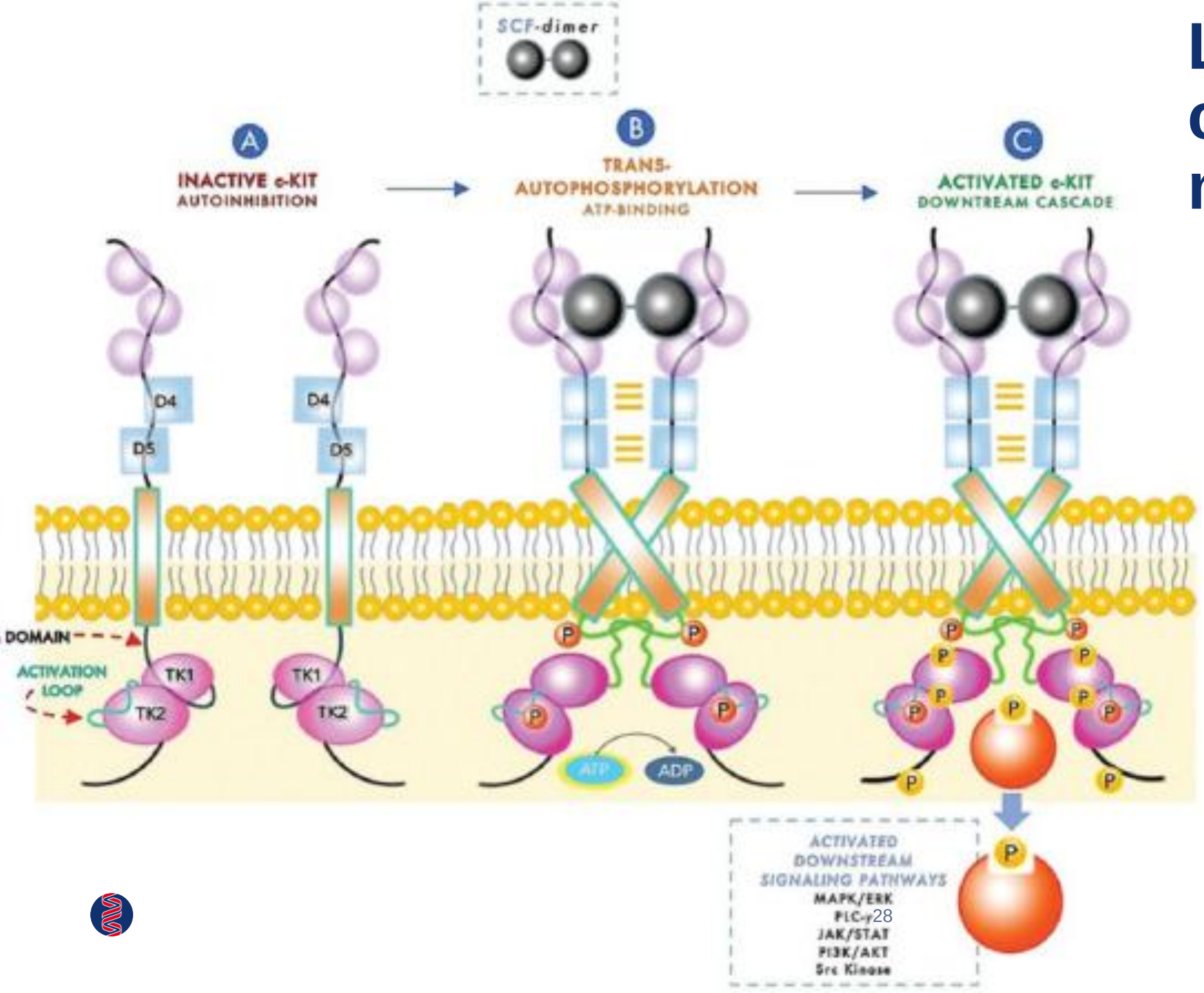


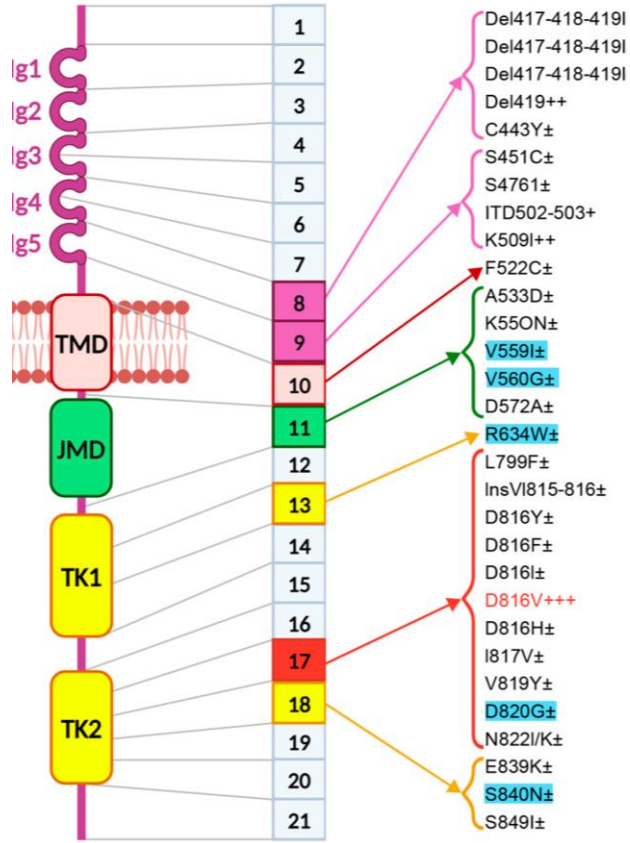
Critères 2021 améliorés pour la mastocytose systémique (1 majeur or 3 mineurs)

Systemic mastocytosis 2021 criteria		(1 MA or 3/4 MI)
Major (MA)		Multifocal dense infiltrates of mast cells (>15 MC in aggregates) in the bone marrow and/or other tissue
Minor (MI) (3/4)	1	> 25% of mast cells (MC) are atypical MC in bone marrow or **other tissue***
	2	KIT-**activating KIT*** points variant(s) at codon D816V or others in blood, bone marrow or **other tissue**
	3	MC expressing CD25 with or without CD2, or **CD30***
	4	Baseline tryptase level >20 µg/L, except in myeloid neoplasm or adapted in case of **HαT (+ 9 µg/l*** per additional a-tryptase copy number

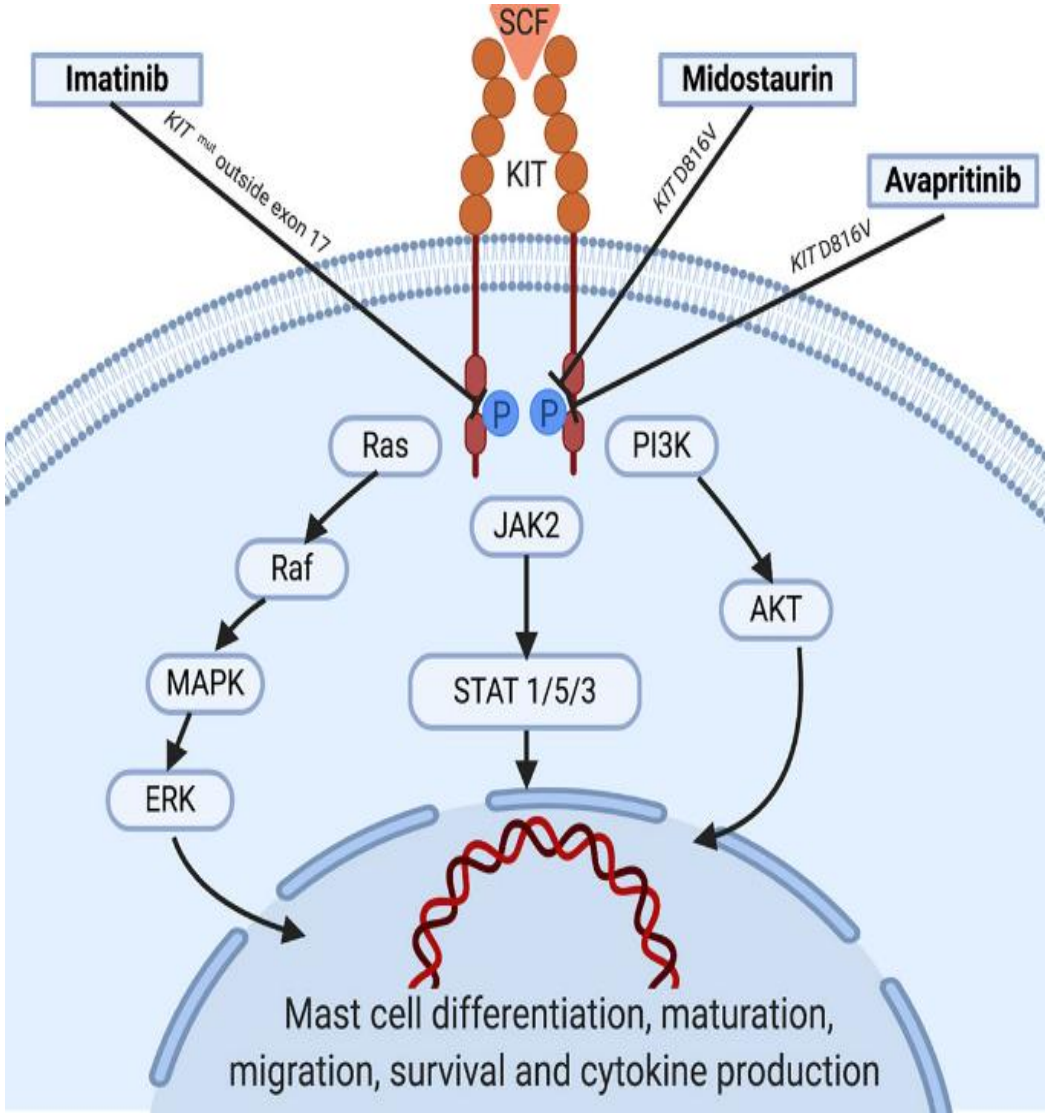
• Ajouté dans la révision récente

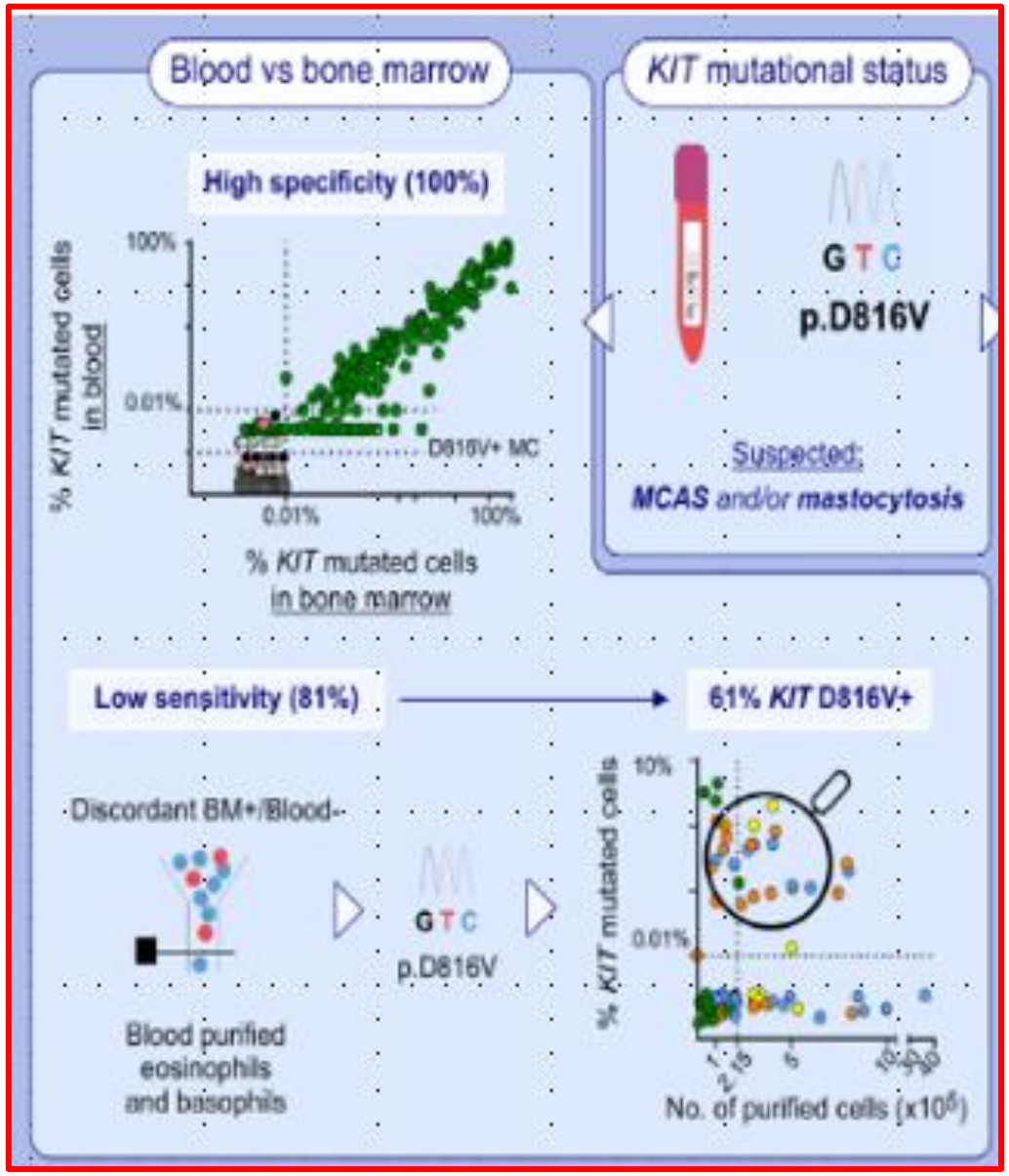
Liaison SCF/ cKIT (CD 117) et mutations





Mutations de KIT/CD 117 (D816V et autres) et blocage d'activation des tyrosine kinases mutées (inhibiteurs)





Allergy. 2023;78:1347–1359.

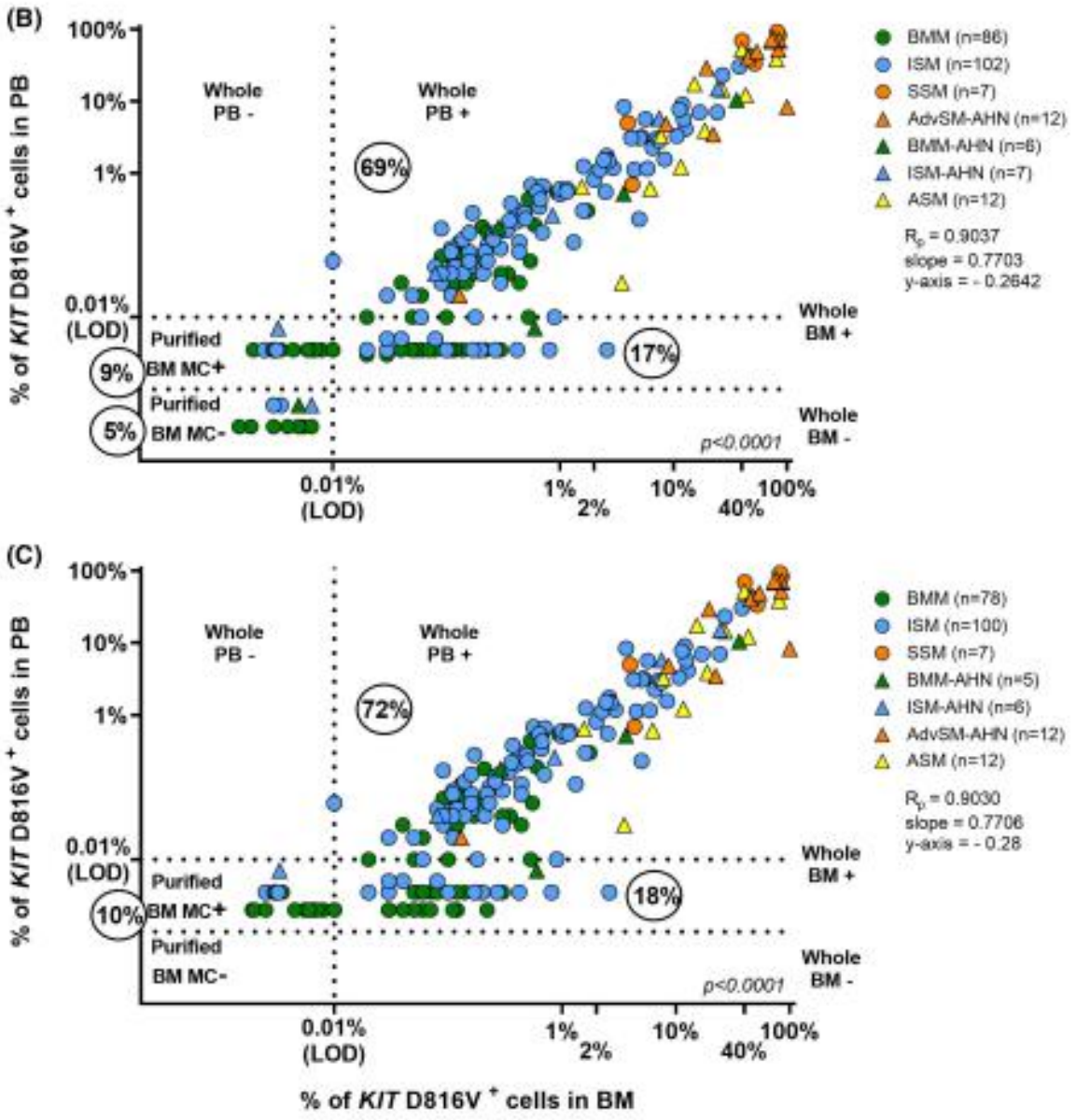


Table 1 Updated World Health Organization classification of mastocytosis and basic demographics[a]

Variant and subvariant	Mostly found in (children/adults)	Estimated prevalence in mastocytosis[a]	Estimated median survival (years)
Cutaneous mastocytosis (CM)			
Maculopapular CM (MPCM), also known as urticaria pigmentosa (UP)	Children	30–60%	>50[b]
Diffuse CM (DCM)	Children	<10%	>50[b]
Mastocytoma of skin	Children	<5%	>50[b]
Systemic mastocytosis (SM)			
Nonadvanced forms of SM			
Bone marrow mastocytosis (BMM)	Adults	<10%	>20[b]
Indolent SM (ISM)	Adults	30–50%	>20[b]
Smoldering SM (SSM)	Adults	5%	>10
Advanced forms of SM			
SM with an associated hematologic neoplasm (AHN)	Adults	5%	1–5
Aggressive SM (ASM)	Adults	<5%	2–5
Mast cell leukemia (MCL)	Adults	<1%	<2[c]
Localized aggressive mast cell tumor			
Mast cell sarcoma (MCS)	Adults	<0.1%	<2

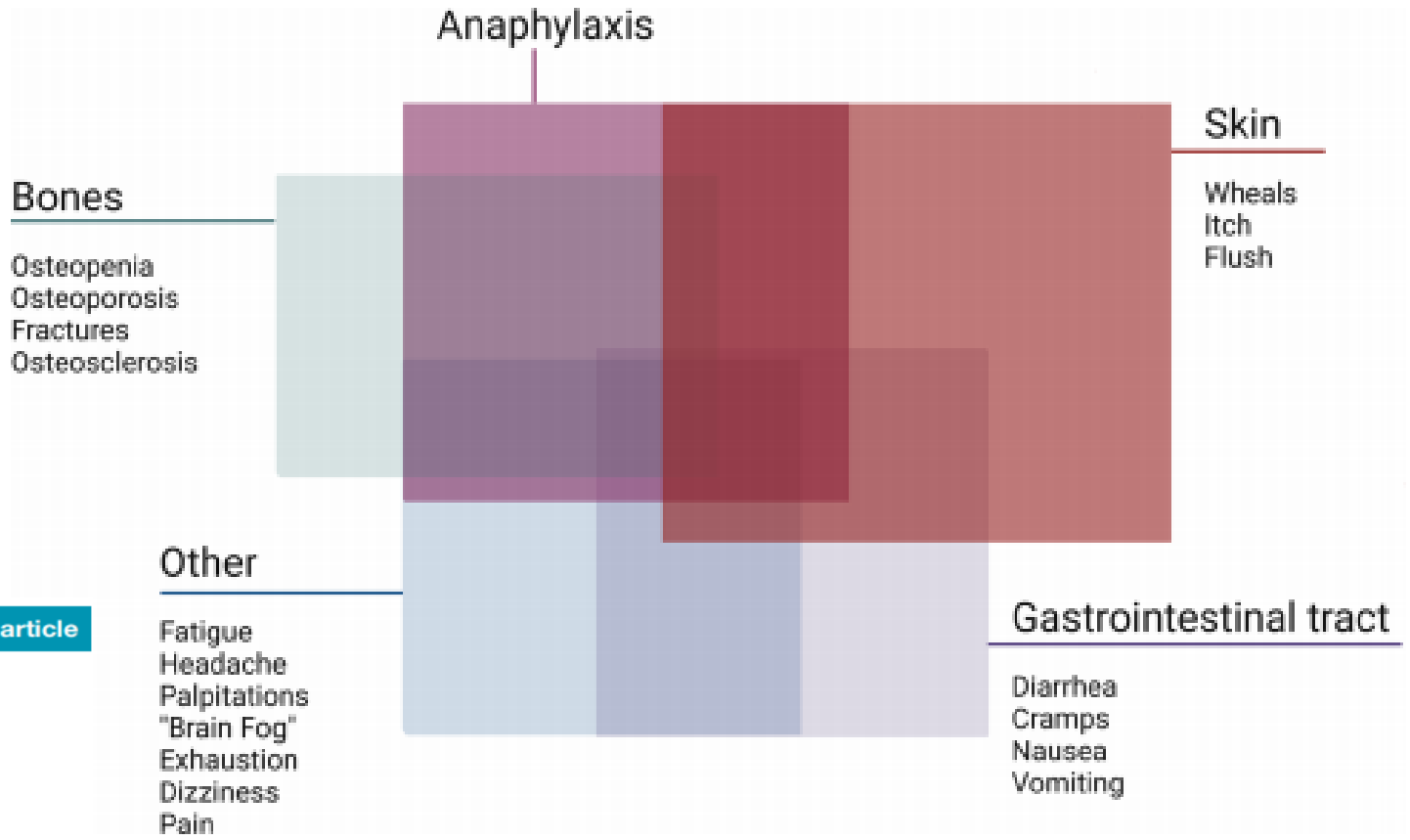
[a]Mastocytosis is a rare disease with an estimated incidence of approximately 1/100,000 per year in industrialized countries.

[b]In these groups of patients, the life expectancy is normal or near normal.

[c]In chronic MCL, defined by the absence of SM-induced organ damage, the survival time is more than 2 years unless the patient progresses to acute MCL

Spectrum of clinical symptoms in indolent mastocytosis

Fig. 1 Spectrum of clinical symptoms in indolent systemic mastocytosis (ISM; modified after [20])



position article

Allergo J Int
https://doi.org/10.1007/s40629-025-00327-x

Mastocytosis in the age of precision medicine

Position paper of the German Society of Allergy (AeDA) on the management of indolent systemic mastocytosis

Frank Siebenhaar · Randolf Brehler · Deborah Christen · Karin Hartmann · Sabine Altrichter · Marcus Joest · Kristin aufm Kampe · Claudia C. V. Lang · Undine Lippert · Norbert Mülleneisen · Hagen Ott · Jens Panse · Polina Pyatilova · Peter Schmid-Grendelmeier · Petra Staubach · Stefani Röseler · Franziska Ruëff · Dagmar von Bubnoff · Nikolas von Bubnoff · Nicola Wagner · Torsten Zuberbier · Marcus Maurer · Friederike Bärhold · Ludger Klimek · Knut Brockow

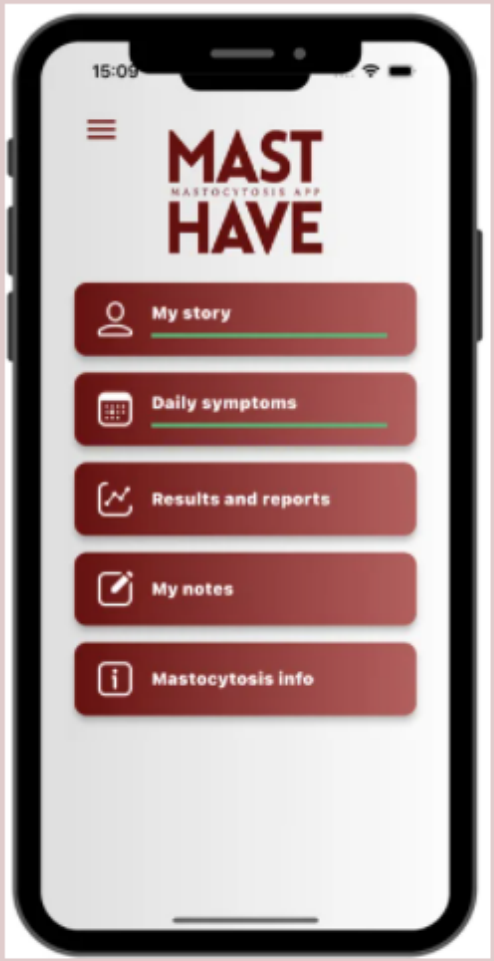
Examens recommandés pour le suivi de la mastocytose cutanée (indolente) dans la pratique

Follow-up examination	*1. Symptom and findings assessment:*
	a. Anaphylaxis (with previous medical history: yes/no?)
	b. Skin lesions (grade 0–5)
	c. Repeat DXA scan (e.g., after 3–5 years[a])
	d. New fractures (with previous medical history: yes/no?)
	e. PROMs for continuous symptom recording (MAS, Masthave® app)
	2. Quality of life (MC-QoL), disease control (MCT)
	3. Laboratory values:
	a. Serum tryptase
	b. KIT-D816V VAF[b]
	c. Differential blood count, AP, β2MG
	4. Upper abdominal sonography (hepato- and/or splenomegaly: yes/no?)[c]

Monitorer l’évolution clonale et les symptômes permet d’adapter le traitement

- Contrôle de l’évolution au long cours (1x /an)
- Adaptation du traitement aux inhibiteurs des tyrosine kinases (avapritinib; approuvé par CM) dès l’apparition des formes cutanées modérée à sévères
- Guetter les apparitions de dysfonction d’organes, typiques de la mystocytose systémique
- Les formes légères de mastocytose cutanée sont traitées symptomatiquement

Mastozytose-App: MASTHAVE (masthave-app.com)



Download MASTHAVE® for free

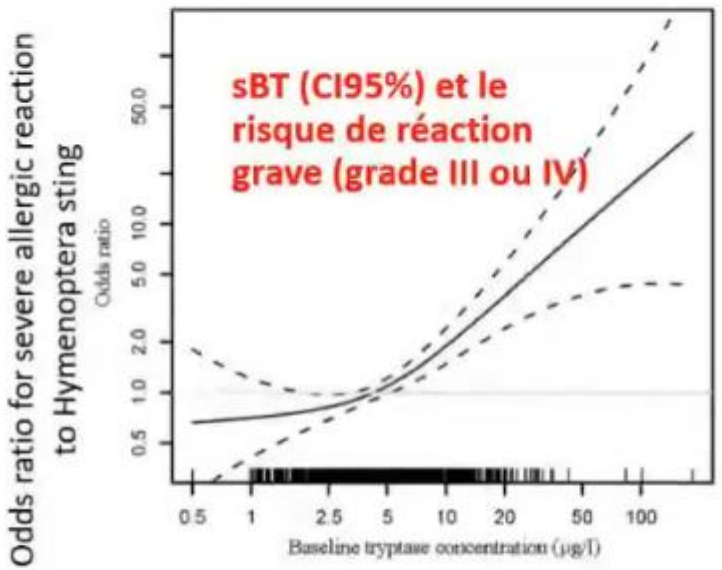
MASTHAVE® - Your Mastocytosis diary

Google Play Store

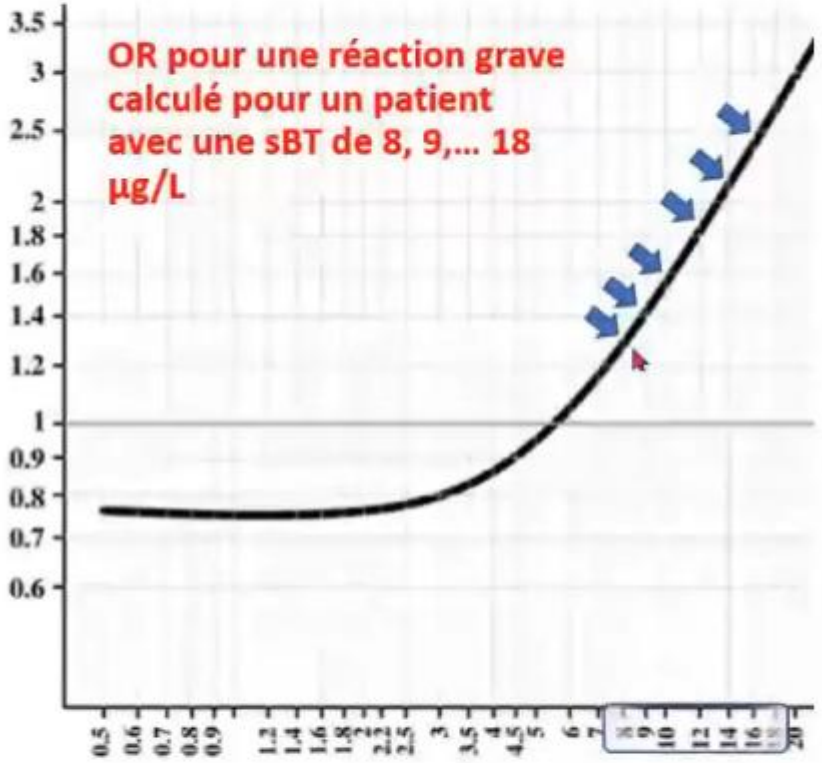
Apple App Store

2009: tryptase basale >5 µg/L associée avec risque de réaction grave après piqûre hyménoptère

V



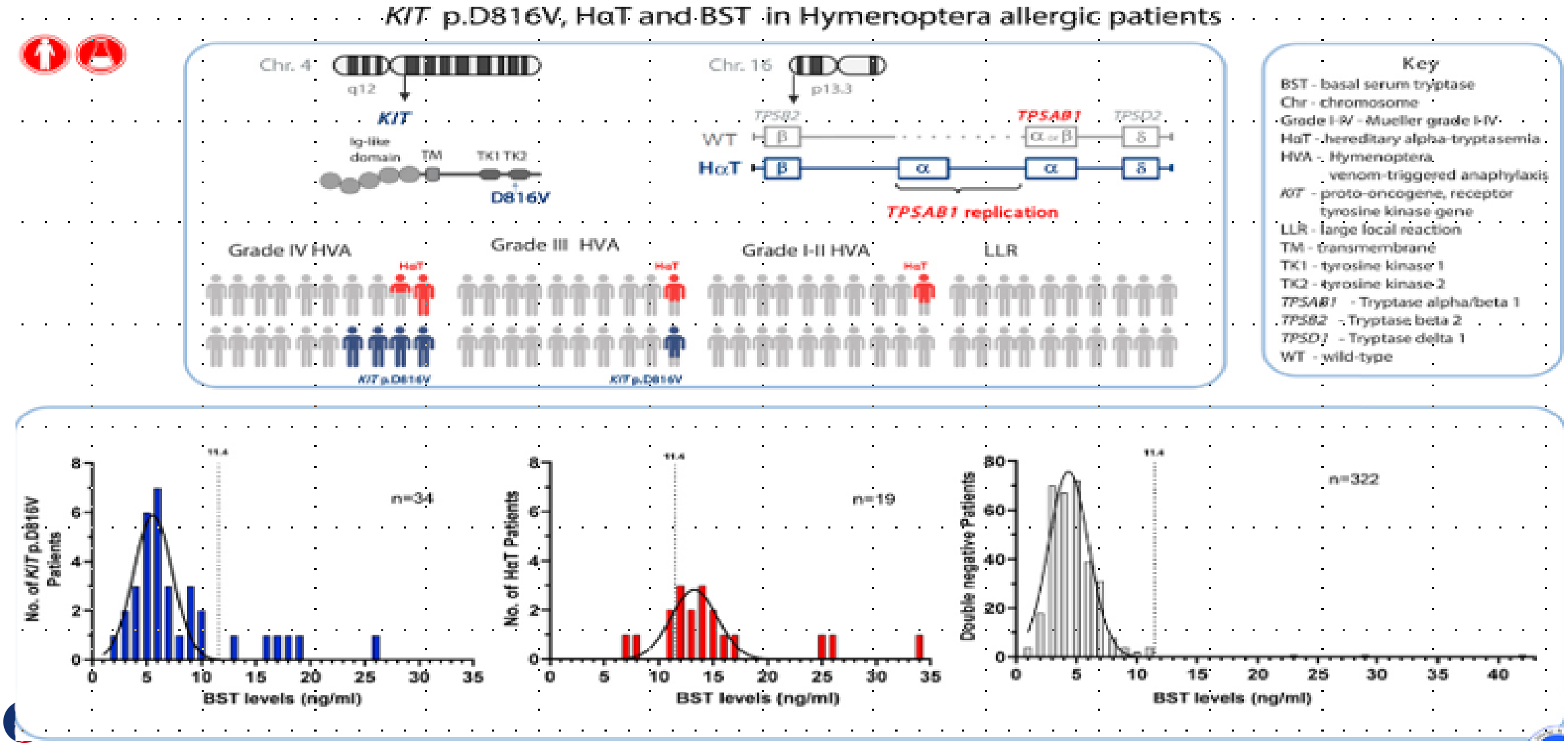
962 adultes
13 centres européens



"With respect to reactions after a field sting, the currently accepted upper limit for an apparently normal tryptase concentration (11.4 µg/L) might be inadequate."

Ruëff F *et al, J Allergy Clin Immunol* 2009
(EAACI Interest Group on Insect Venom Hypersensitivity)

Hymenoptera allergic patients: HAT and C-Kit correlated to severity grade of anaphylaxis



Selb J. et al. JACI,2021

Wasp venom allergy patients (62 y old)

- **Anaphylaxis stage 3C** (bronchospasm + cardiac arrest) after wasp sting (acute tryptase 15 µg/L)
- **Immunotherapy (VIT)** for 5 years, no new sting since
- **2 years after stop VIT: Syncope (**Stage 3C), brought inconcious to the ICU after he collapsed riding a bicycle. Recall afterward beeing stung on the lip just before. No other clinical manifestation
- Labo: **Tryptase acute: 14.4 µg/L, basal: 9.2 µg/L**

  Wasp venom IgE Spec: 1.34 kU/L.

  no previous investigation to exclude mastocytosis:

Mast Cell Activation Syndrome (MCAS): 120% basal Tryptase + 2 µg/L : **Positive** (14.4 > 9.2+2=11.2)

Monoclonal Mast Cell (CMD)?

- **REMA Score : +5 ; to evaluate the risk of CMD with normal tryptase**

CMD confirmed: KIT mutation D816V positive (sang EDTA)

REMA SCORE ET RISQUE CMD

	Variable	Score
Gender	male	+1
	female	-1
Clinical signs	Absence of hives, pruritus, angioedema	+1
	Hives, pruritus, angioedema	-2
	Pre / syncope	+3
Basal tryptase	<15	-1
	>25	+1
	Total	
<2	**Low risk of CMD**	
>2	**Increased risk of CMD**	

Adapted from Iván Álvarez-Twose et al. Spanish Network score

Original Article

Mast Cell Activation Syndromes: Comparison Between Two Scoring Models to Predict for Mast Cell Clonality

Tiago Azenha Rama, DMD, MD[a,b,c,d], Inés Torrado, MD[e], Ana Filipa Henriques, PhD[e,f], Laura Sánchez-Muñoz, MD, PhD[e,f,g], Maria Jara-Acevedo, PhD[f,g,h], Paula Navarro-Navarro, MSc[f,g,h], Carolina Caldas, MSc[f,g,h], Andrea Mayado, PhD[f,g,i], Javier Muñoz-González, PharmD, PhD[f,g,i], Andrés García-Montero, PhD[f,g,j], Manuela Mollejo, MD, PhD[j], Elba Redondo, MD[k], Andrea Garbán, MD[k], André Moreira, MD, PhD[a,b,c,d], Alberto Órfão, MD, PhD[f,g,i,*], and Iván Álvarez-Twose, MD, PhD[e,f,g,*] *Porto, Portu and Toledo, Salamanca, and Madrid, Spain*

- **REMA score: spanish network scoring**: vs
- **NICAS:** NIH idiopathic clonal anaphylaxis score:
- **Combined use of REMA score and KIT D816V mutation is recommended to detect CMD**

- **96% mastocytosis, 80% MCAS**
- **88% CMD with N tryptase detected**
- **100% of KIT mutation (D816V) but also other KIT mutation if followed BM/PBMC**

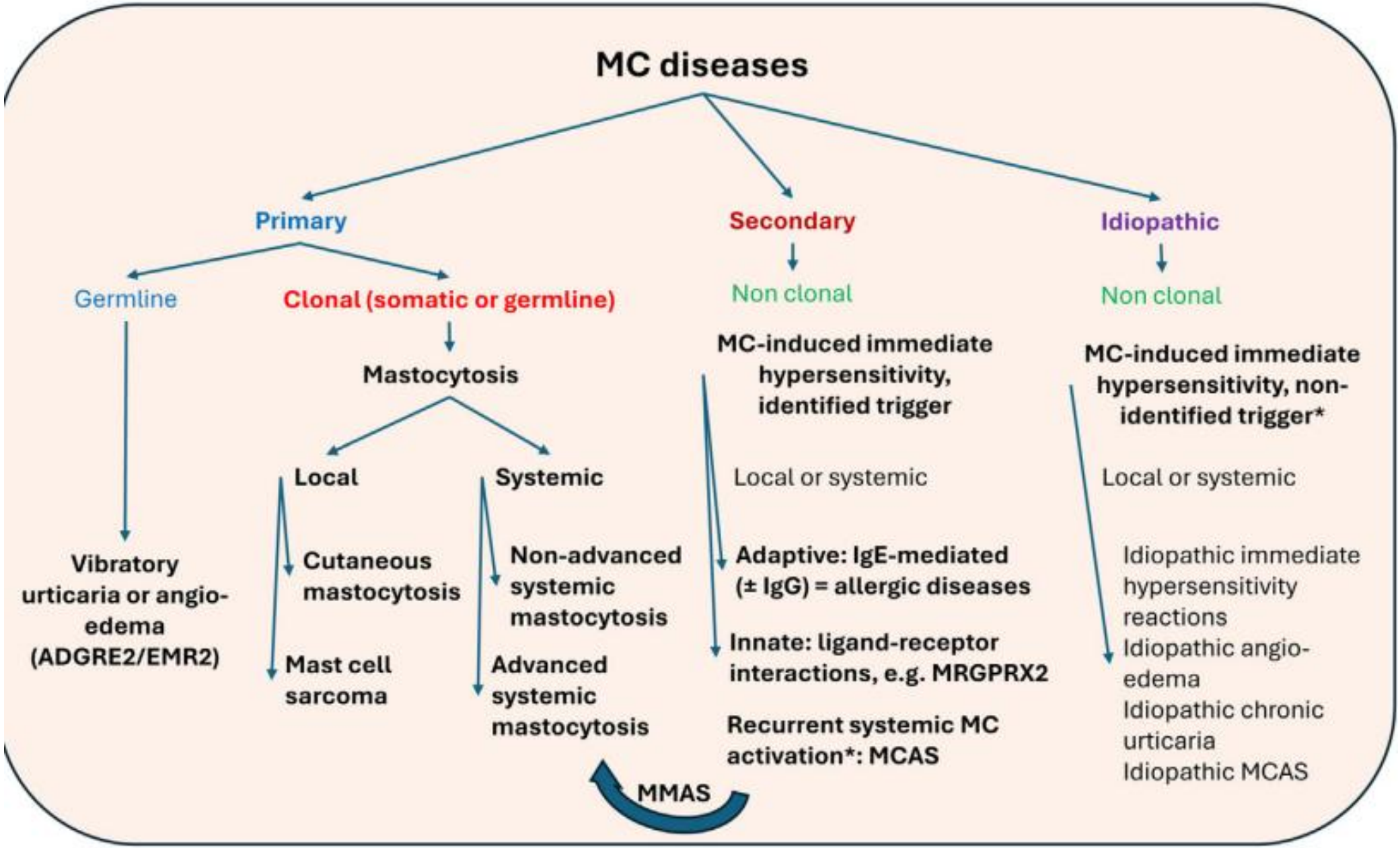
(J Allergy Clin Immunol Pract 2023;11:908-19)

REMA score + KIT(D816V) predicts CMD

	Number	REMA + %	REMA or KIT D816V+ %
Correct classification	182	81	86
Diagnosis			
Mastocytosis	119	92	96
Monoclonal mast cell activation	14	71	**79**
Trigger			
Venom anaphylaxis	80	85	89
Signs			
Anaphylactic shock	106	84	88
Laboratory			
Tryptase : <11,4	58	78	**88**
Tryptase : >20	74	93	93
KIT mutation			
D816V total	133	91	95
Blood EDTA	108	90	94
Bone Marrow	65	92	**100**
Purified MC (other mutations)	17	**100**	100

En résumé

M. Michel et al. / Ann Allergy Asthma Immunol 134 (2025) 649–657



- Tryptase sérique (à répéter):

si anaphylaxie?

- Mutation de cKit (sang EDTA en premier):

si trypt >20 ou anaphylaxie aux venins avec Trypt N

- Génotypage du gène alpha de la Tryptase (digital droplet PCR):

si Trypt >8 et anaphylaxie ?

Merci de votre attention

Questions?

POLYANALYTIC

Analyses médicales