

Horizonte en DA: nuevas moléculas

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Badalona

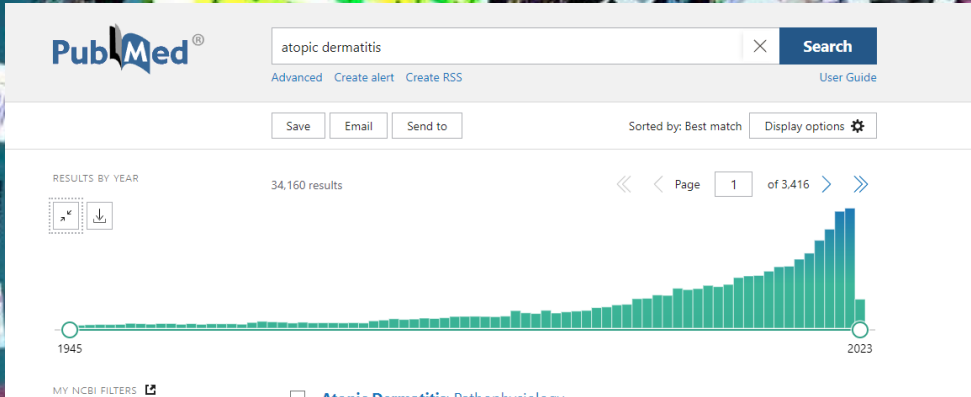


30 de marzo de 2023

Recinte Modernista de Sant Pau, Barcelona

Conflicto de intereses

He participado como IP/SI y/o ponente invitado y/o advisor para Sanofi, Pfizer, Leo-Pharma, Abbvie, Galderma, Lilly, UCB.



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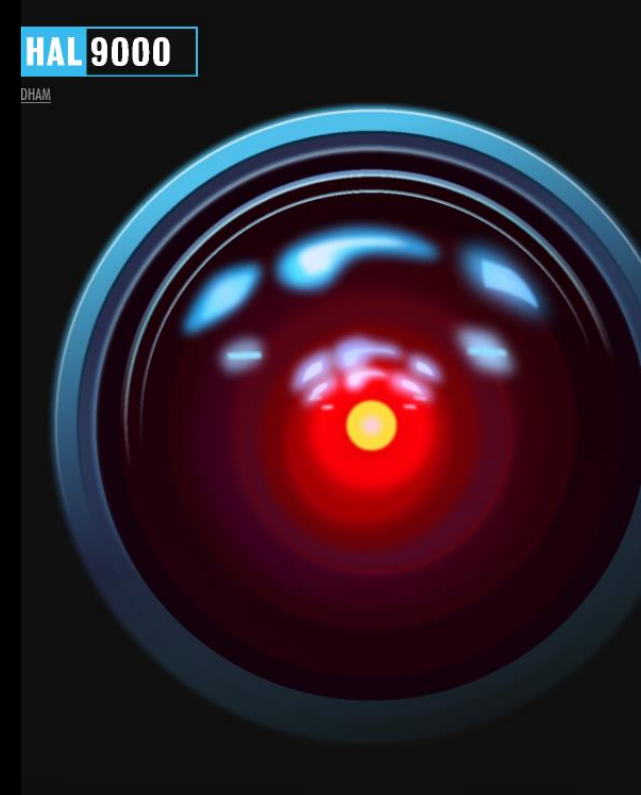
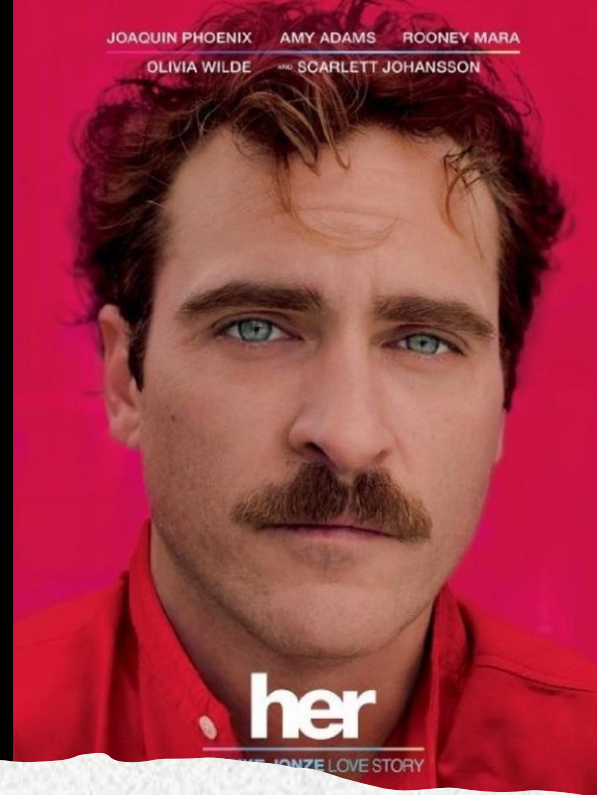
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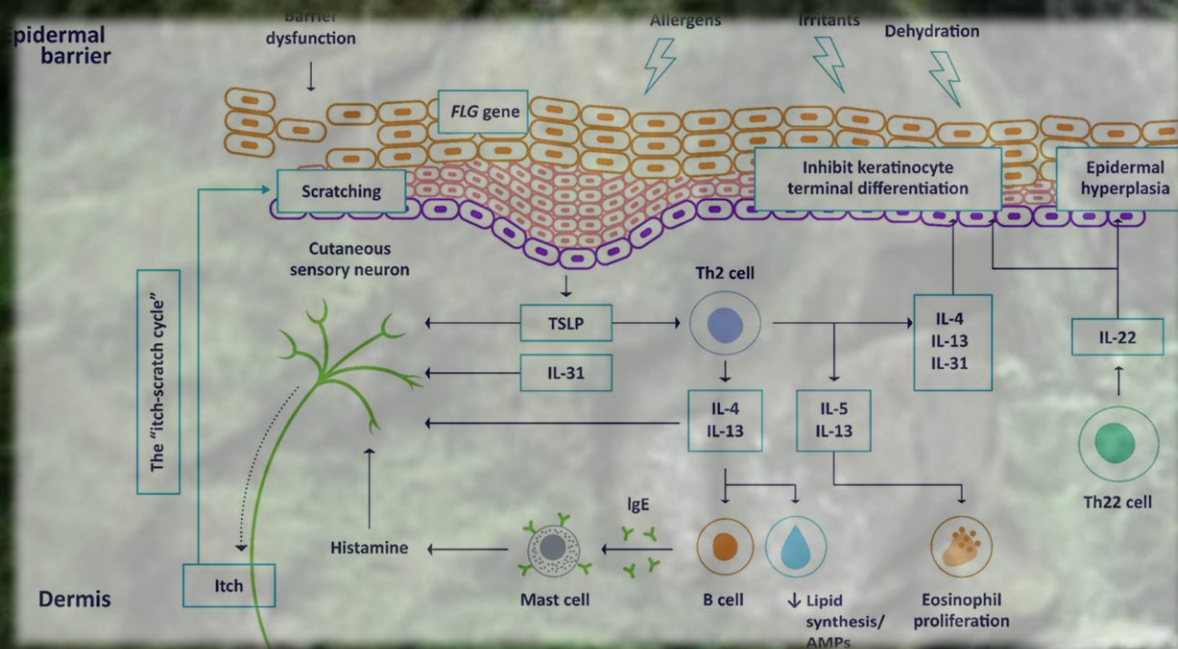
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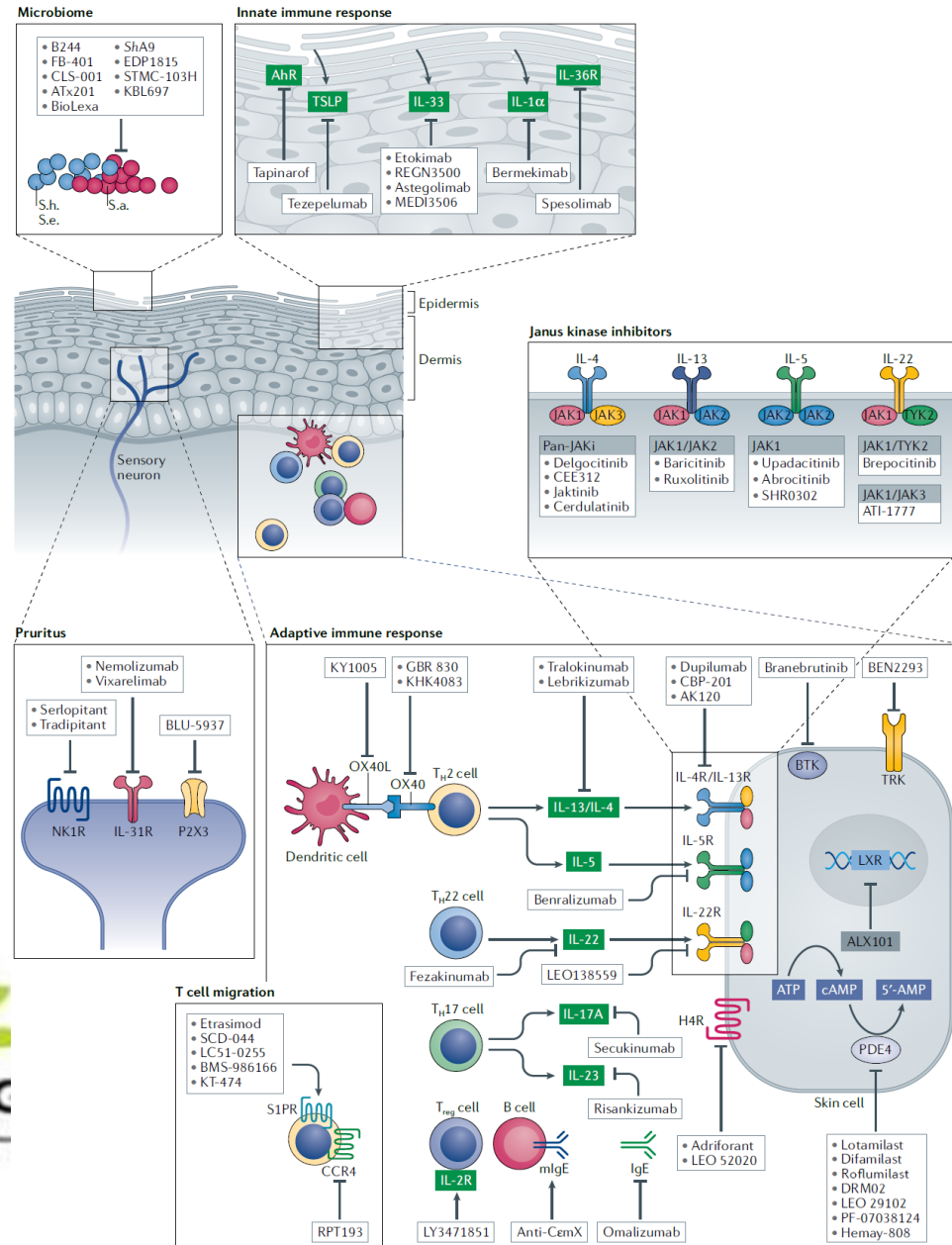
Row	Saved	Status	Study Title	Conditions	Interventions
1	☐	Recruiting	A Study of MG-K10 in Subjects With Atopic Dermatitis	• Atopic Dermatitis	• Drug MG-K10 • Drug Placebo
2	☐	Recruiting	An Efficacy and Safety Study of RPT193 in Adults With Atopic Dermatitis	• Atopic Dermatitis	• Drug RPT193 • Other Placebo



We need an AI.....



REVIEWS



Strategy	Drug type and mode of application	Agent/company	Mode of action/target	Clinical development phase in atopic dermatitis	Clinical trial ID
Modulating the microbiome	Bacterial strains — topical	B244 (AOBome)	Nitric oxide donor	Ib	NCT0490109
		ShA9 (NIAD)	Targeted microbiome transplant	I/IIa	NCT01511148
		FB-401 (forte Biosciences)	Bacterial replacement, anti-inflammation via TLRs and TNF activation	Ib	NCT04504279
	Small molecule — topical	CLS-001 (omigan) (Cutaneous Life Sciences)	Cell membrane enhancer	II	NCT02456480
		ATx201 (Indoquamide (Union Therapeutics))	Protonophore activity	II	NCT04339985
	Bacterial strains — oral	EDP1815 (Evelo)	Modulation of systemic inflammation	Ib	NCT03733353
		STMC-103H (Solita therapeutics)	Immunomodulation via microbiome manipulation	Ib	NCT03819881
Targeting the innate immune response	Small molecule — topical	Tapinarof (benvinod (Dermavant))	AhR agonist	Ib	NA
	Biologic — injection	Tezepelumab (Amgen/AstraZeneca)	TSLP	Ia	NCT02525094
		Etokimab (AnaptysBio)	IL-33	Ia	NCT03533751
		REGN3500 (Regeneron)	IL-33	Ia	NCT03738423
		Astegolimab (Genentech)	IL-33	Ia	NCT03747575
		MEDI3506 (Medimmune)	IL-33	Ia	NCT04212169
		Bermekimab (Janssen)	IL-1α	Ia	NCT04906974
		Spesolimab (Boehringer Ingelheim)	IL-36R	Ia	NCT03822832
		CBP-830/TSB-830 (Glenmark/Idorsia)	OX40	Ib	NCT03568162
		KHK4083 (Kyrrin)	OX40	Ib	NCT03703102
		KY1005 (Kyrrin/Sanofi)	OX40L	Ib	NCT03754309
		Dupilumab (Regeneron/Sanofi)	IL-4Rα	Approved globally, staggered paediatric programme ongoing	NCT03464334
		CBP-201 (Connect Biopharma)	IL-4Rα	Ib	NCT04444752
		AK120 (Alicobac)	IL-4Rα	Ib	NCT04256174
		ASLAN004 (ASLAN)	IL-13Rα1	Ib	NCT04900229
		Tralokinumab (LEO Pharma)	IL-13	Approved in EU, staggered paediatric programme ongoing	NCT03526861
		Lebrikizumab (Astellera/Lilly)	IL-13	II, staggered paediatric programme ongoing	NCT04250350
		Benralizumab (AstraZeneca)	IL-5Rα	II	NCT04605094
		Omalizumab (Novartis)	IgE	II	NCT02300701
		FB25 (Sanofi-CamX) (LEO Pharma/Onecore Biotech)	mIgE	Ia	NCT04413942
		Fezakinumab (BT)	IL-22	Ia	NCT01941537
		LEO138559 (LEO Pharma)	IL-22R1	Ib	NCT03514531
		Secukinumab (Novartis)	IL-17A	Ia	NCT02594098, NCT03568136
		Rimekinumab (AbbVie)	IL-23	Ia	NCT03706040
		LY3471851 (Lilly)	rhl-2 to L ₂ cells	Ib	NCT04081350

Strategy	Drug type and mode of application	Agent/company	Mode of action/target	Clinical development phase in atopic dermatitis	Clinical trial ID
Targeting the adaptive immune response (cont.)	Small molecule — oral	Adirforant (Novartis)	H4R	Ib	NCT03517566
		LEO152020 (W1601) (LEO Pharma)	H4R	I	NCT04203836
		RPT193 (RAPI Therapeutics)	CCR4	Ia	NCT04271514
		Etrasimod (Novartis)	S1PR1, S1PR4, S1PR5	Ib	NCT04504279
		SCD-044 (Sun Pharma)	S1PR1	Ia	NCT04684485
		LC51-0255 (LG Chem)	S1PR1	I	NA
		BMS-986166 (Bristol Myers Squibb)	S1PR1	Ia	NCT03038711
		KT-474 (Kyrrin)	S1PR1	Ib	NCT04772885
	Small molecule — topical	AKP-19 (Amaal Pharma)	S1PR1	II	NA
		Lotamylast (RVT-501) (Eli Lilly)	PDE4	II	NCT03946077, NCT02509922
		Difamilast (OPF-15406/MM36) (Onsila)	PDE4	II	NCT02945657
		DRM02 (Dermavant)	PDE4	II	NCT01903420
		LEO29102 (LEO Pharma)	PDE4	II	NCT01017881
		Roflumilast (AstraZeneca)	PDE4	II, pharmacokinetics and efficacy in paediatrics	NCT04515631
		Hemay-808 (Tianjin Hemay Pharmaceutical)	PDE4	II	NCT04535295
		PF-07038124 (Pfizer)	PDE4	II	NCT04664153
		BEN2293 (Benvenioventi)	TRK	I/II	NCT04737304
		HY208 (Shapero)	GPCR19	Ia	NCT04530643
		VTP-38543 (Vivian Pharma)	Liver X receptor β	I/II	NCT02656779
		ALX101 (Ralecar)	Liver X receptor	II	NCT03859986
Targeting itching	Biologic — injection	Nemolizumab (Galderma)	IL-31	III	NCT03989498, NCT03985943
		Vixarelimab (Kincisa Pharma)	OSMRβ	Ia/Ib	NCT03858691
		Serlopitant (Merck)	NK1R	II	NCT02975206
		Tradipitant (Novartis)	NK1R	II	NCT03568331
		BLU-5937 (Bellus)	P2X3	II	NCT04603195
		Delgocitinib (Japan Tobacco/LEO)	Pan-JAK	Ib in EU, approved in Japan	NCT03725722
		Ruxolitinib (Eli Lilly)	JAK1/JAK2	III	NCT03745638, NCT03745651
		Cerdulatinib (RVT/DWI/502) (Dermavant)	Pan-JAK/SYK	Ib	NA
		Brepocitinib (Pfizer)	JAK1/TYK2	Ib	NCT03903822
		ATI-1777 (Adars)	JAK1/JAK3	II	NCT04598269
		CEE312 (Novartis)	Pan-JAK	I	NCT04612062
		Jaktinib (Suzhou Zeigen Biopharma)	Pan-JAK	Ia	NCT04519639
		SHR0302 (Reistone Biopharma)	JAK1	II	NCT04717310
		Baricitinib (Lilly)	JAK1/JAK2	Approved in EU for adults, staggered paediatric programme ongoing	NCT01952559
		Upadacitinib (AbbVie)	JAK1	II, staggered paediatric programme ongoing	NCT03646604
		Abrocitinib (Pfizer)	JAK1	II, staggered paediatric programme ongoing	NCT03627767
		SHR0302 (Reistone Biopharma)	JAK1	II	NCT04582899

AhR, aryl hydrocarbon receptor; BTK, Bruton tyrosine kinase; CCR4, C-C chemokine receptor 4; GPCR19, G-protein coupled receptor 19; H4R, type 4 histamine receptor; IL-4 receptor α chain of the IL-4 receptor; IL-5Rα, α chain of the IL-5 receptor; IL-13Rα1, α chain of the IL-13 receptor; IL-22R1, IL-22 receptor 1; JAK, Janus kinase; NK1R, neurokinin 1 receptor; NA, not applicable; OSMRβ, oncostatin M receptor β; OX40L, OX40 ligand; PDE4, phosphodiesterase 4; P2X3, purinergic receptor 3; rhl-2, recombinant human IL-2; S1PR1, sphingosine 1-phosphate receptor 1; T_H cell, regulatory T cell; TRK, tropomyosin receptor kinase; TSLP, thymic stromal

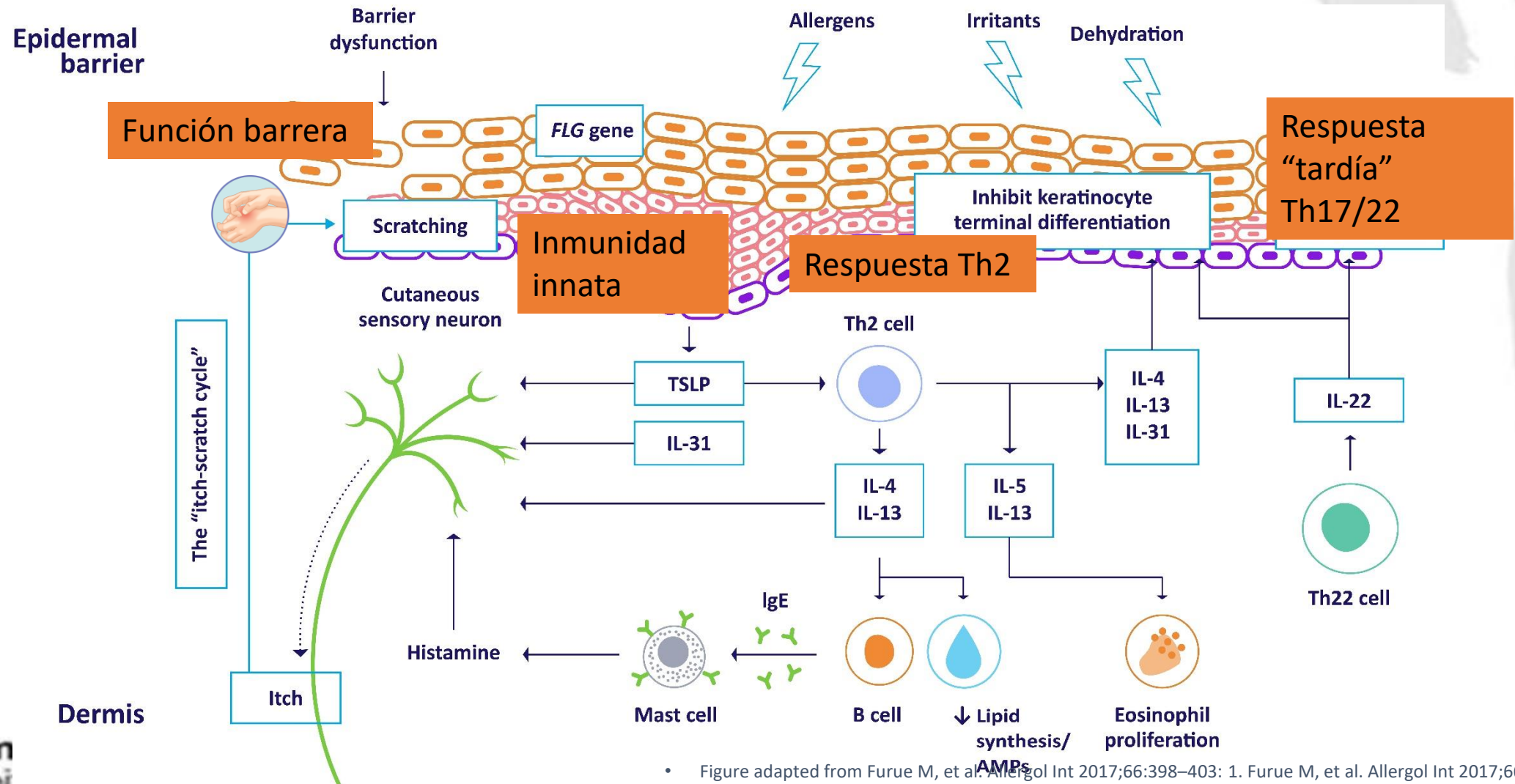
REVIEWS



Atopic dermatitis: an expanding therapeutic pipeline for a complex disease

<https://doi.org/10.1038/s41573-021-00266-6>

Fisiopatogenia de la Dermatitis atópica en 1 minuto



- Figure adapted from Furue M, et al. Allergol Int 2017;66:398–403; 1. Furue M, et al. Allergol Int 2017;66:398–403;
- 2. Bao L, et al. JAK-STAT 2013;2:e24137

AD, atopic dermatitis; AMP, AMP, antimicrobial peptide; FLG, filaggrin; IgE, immunoglobulin E; IL, interleukin; Th, T helper; TSLP, thymic stromal lymphopoietin

Modulación de la microbiota

Rebalancing the skin microbiota can lead to a **reduction in the SA load**

- A spray product containing *Nitrosomonas eutropha* an ammonia-oxidizing bacterium able to produce nitric oxide, is a mediator with anti-inflammatory and metabolic properties.
- Application of a topical ointment of 2% niclosamide (ATx201) has also been shown to be effective in reducing SA

Colonization

- Oral integration with preparations of bacterial strains with therapeutic potential capable of altering the intestinal microbiome

Table 1. Clinical trials targeting skin microbiome molecules in AD.

Target Molecule	Clin Trial Gov	Type of Study	Status
Microbiome			
Topical bacterial strains			
Targeted Microbiome Transplant Lotion (TMT)	NCT03151148	Phase I/II for AD	Completed
Autologous Microbial Transplant	NCT03158012	Phase I for AD	Completed
Autologous Microbial Transplant	NCT01959113	Phase I for AD	Completed
Three strains of <i>Roseomonas mucosa</i> FB-401	NCT04504279	Phase II for AD	Completed
Three strains of <i>Roseomonas mucosa</i> FB-401	NCT04936113	Phase II for AD	Terminated (Failure of the Phase II study (protocol FB401-01) to meet its endpoint))
Lyophilized strain of <i>Staphylococcus hominis</i> A9 (ShA9) (ADRN-UCSD-001)	NCT05177328	Phase I for AD	Recruiting
<i>Nitrosomonas eutropha</i> spray (B244)	NCT04490109	Phase II for AD	Completed
Topical small molecule			
Topical niclosamide 2% (ATx201)	NCT04339985	Phase II for AD	Completed
Topical niclosamide 2% (ATx201)	NCT03304470	Phase II for AD	Completed

Omiganan:....going down....

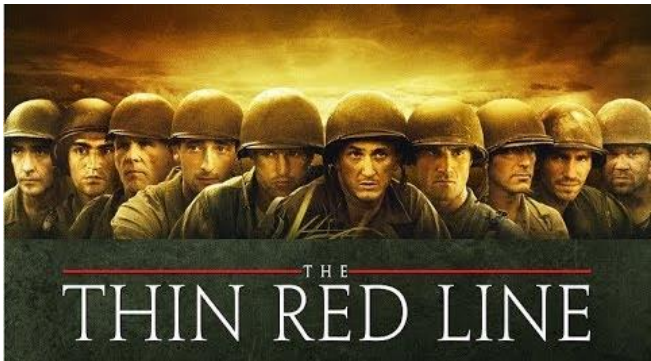


Results

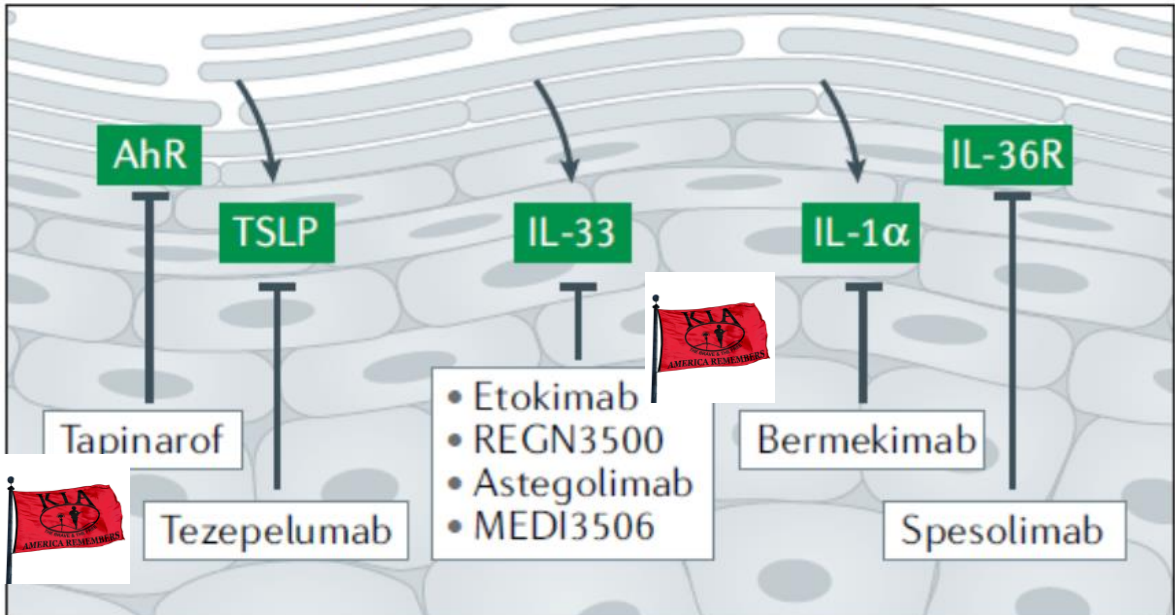
In all omiganan treatment groups, dysbiosis was recovered by reducing *Staphylococcus* species abundance and increasing diversity. A reduction of cultured *S aureus* was observed in all omiganan treatment groups, with a significant reduction for omiganan 2.5% compared to vehicle (-93.5%; 95% CI, -99.2 to -28.5%; $P = .02$). No significant clinical improvement was observed.

Niemeyer-van der Kolk T et al J Am Acad Dermatol. 2022 Apr;86(4):854-862.
doi: 10.1016/j.jaad.2020.08.132. Epub 2020 Oct 1. PMID: 33010325.

Respuesta innata: algunas decepciones....y nuevas esperanzas



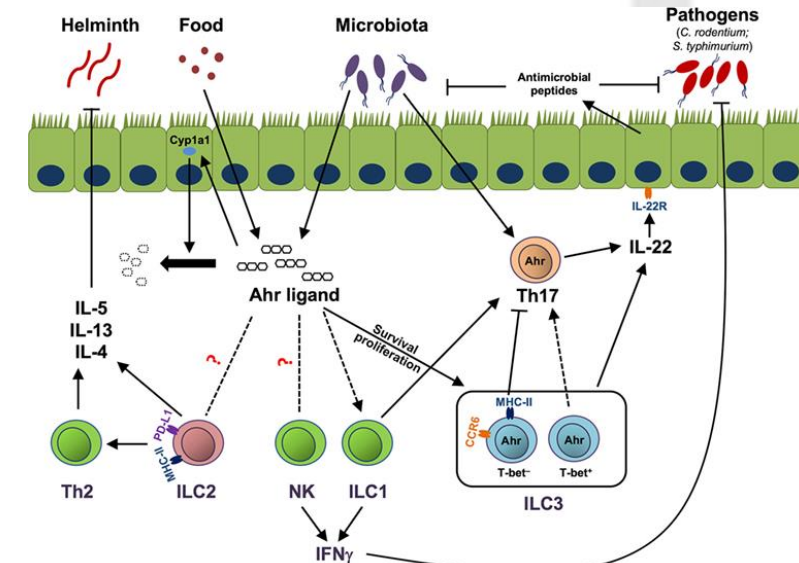
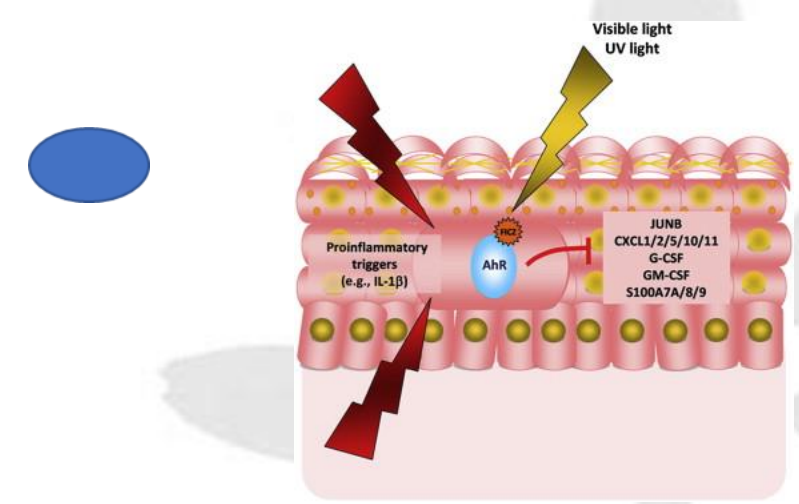
Innate immune response



Targeting the innate immune response	Small molecule — topical	Tapinarof/benvitimod (Dermavant)	AhR agonist	Ilb	NA
	Biologic — injection	Tezepelumab (Amgen/AstraZeneca)	TSLP	Ila	NCT02525094
		Etokimab (AnaptysBio)	IL-33	Ila	NCT03533751
		REGN3500 (Regeneron)	IL-33	Ila	NCT03738423
		Astegolimab (Genentech)	IL-33	Ila	NCT03747575
		MEDI3506 (MedImmune)	IL-33	Ila	NCT04212169
		Bermekimab (Janssen)	IL-1α	Ila	NCT03496974
		Spesolimab (Böhringer Ingelheim)	IL-36R	Ila	NCT03822832

Tapinarof (GSK2894512 cream) for the treatment of atopic dermatitis

- Nonsteroidal topical agent known as therapeutic aryl hydrocarbon receptor (AhR) modulating agents.
- Binding the AhR and activating the AhR pathway in multiple cells and tissue-based systems
- **Controls the expression of IL-21 and IL-22 and plays an important role in the differentiation of T-helper 17 cells in vivo and in vitro**
- Antioxidant by inhibiting reactive oxygen species
- Inhibition pro-inflammatory vs immunosuppressive ??



Tapinarof (GSK2894512 cream) for the treatment of atopic dermatitis

- Week 12 IGA responses were higher in the tapinarof groups versus the vehicle group, reaching statistical significance with tapinarof 1% twice daily
- 75%/90% improvement in EASI from baseline were significantly higher in the tapinarof groups (except 0.5% once daily and 0.5% twice daily),

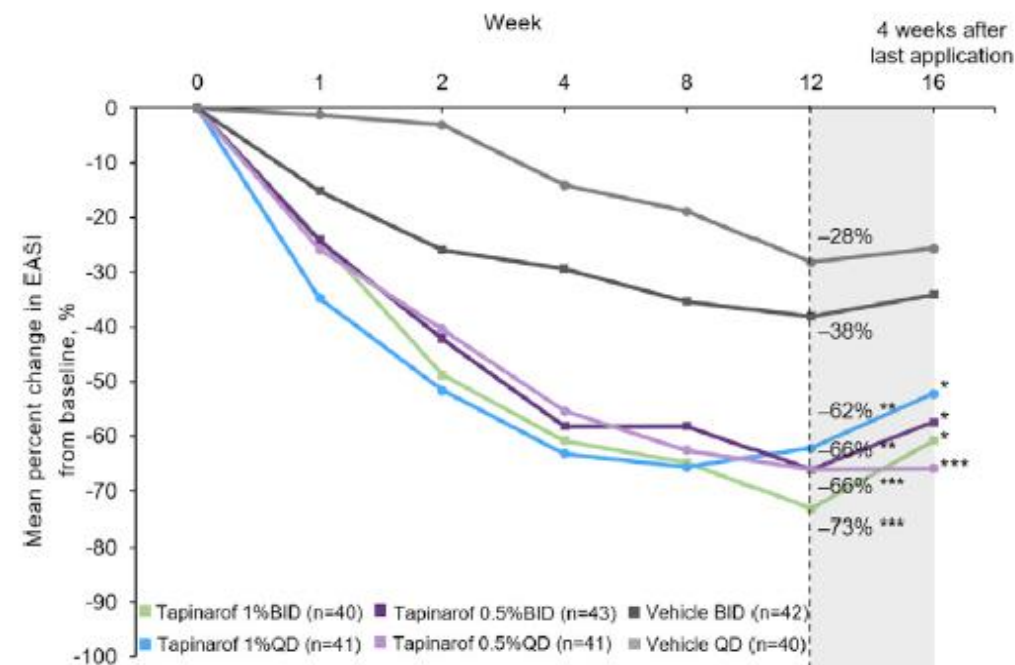
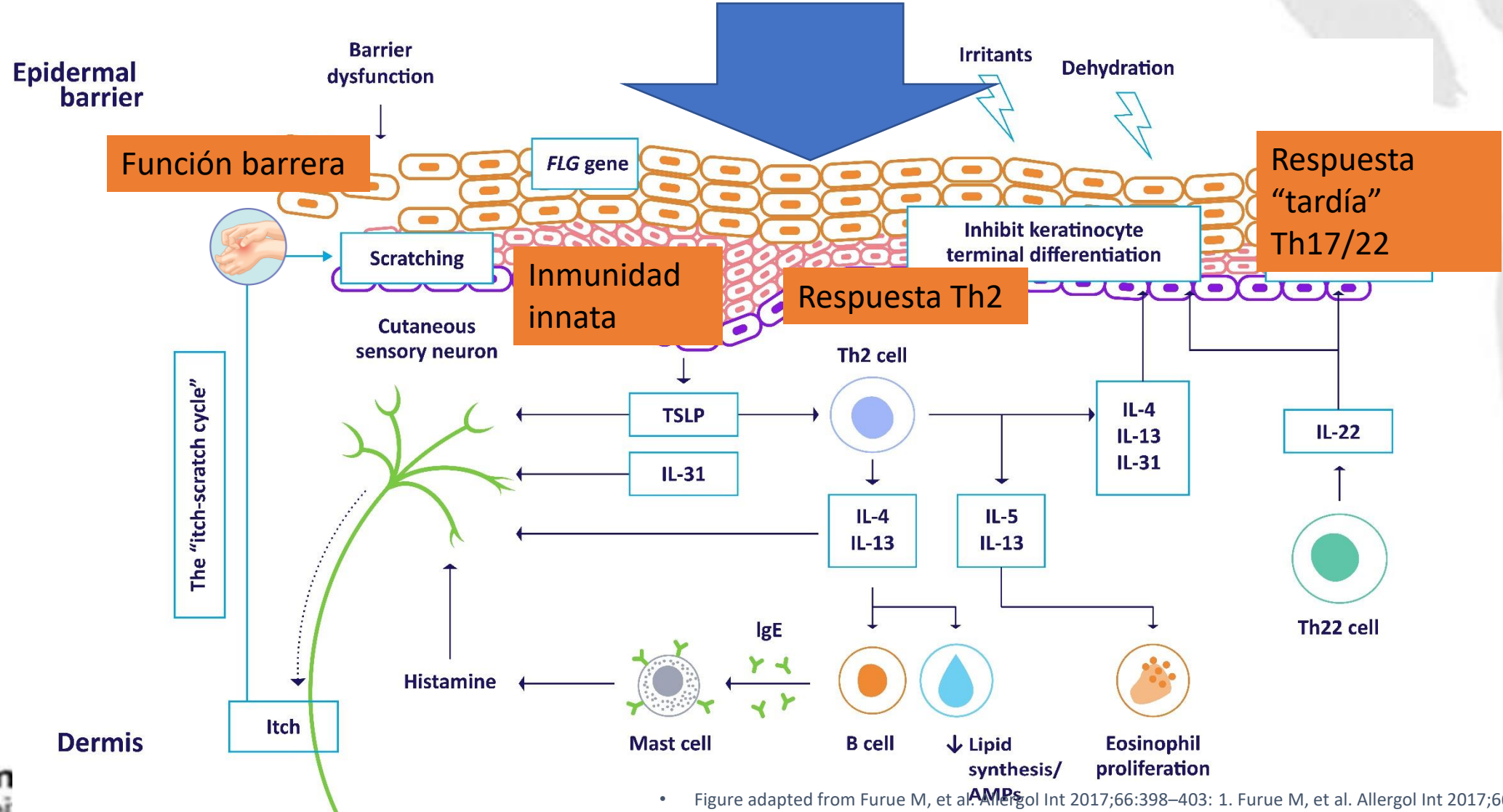


Fig 1. Mean percent change in EASI scores from baseline

**FDA approved for
psoriasis !!!!**

Fisiopatogenia de la Dermatitis atópica en 1 minuto



- Figure adapted from Furue M, et al. Allergol Int 2017;66:398–403; 1. Furue M, et al. Allergol Int 2017;66:398–403;
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AD, atopic dermatitis; AMP, AMP, antimicrobial peptide; FLG, filaggrin; IgE, immunoglobulin E; IL, interleukin; Th, T helper; TSLP, thymic stromal lymphopoietin

Targeting the adaptive immune response	Biologic — injection	GBR 830/ISB 830 (Glenmark/Ichnos)	OX40	IIb	NCT03568162
		KHK4083 (Kyrin)	OX40	IIb	NCT03703102
		KY1005 (Kymab/Sanofi)	OX40L	IIa	NCT03754309
		Dupilumab (Regeneron/Sanofi)	IL-4R α	Approved globally, staggered paediatric programme ongoing	NCT03346434
		CBP-201 (Connect Biopharma)	IL-4R α	IIb	NCT04444752
		AK120 (Akesobio)	IL-4R α	Ib	NCT04256174
		ASLAN004 (ASLAN)	IL-13R α 1	Ib	NCT04090229
		Tralokinumab (LEO Pharma)	IL-13	Approved in EU, staggered paediatric programme ongoing	NCT03526861
		Lebrikizumab (Allmiral/Lilly)	IL-13	III, staggered paediatric programme ongoing	NCT04250350
		Benralizumab (AstraZeneca)	IL-5R α	II	NCT04605094
		Omalizumab (Novartis)	IgE	II	NCT02300701
		FB825/anti-C ϵ mX (LEO Pharma/Oneness Biotech)	mIgE	IIa	NCT04413942
		Fezakinumab (IIT)	IL-22	IIa	NCT01941537
		LEO 138559 (LEO Pharma)	IL-22R1	Ib	NCT03514511
		Secukinumab (Novartis)	IL-17A	IIa	NCT02594098, NCT03568136
		Risankizumab (AbbVie)	IL-23	IIa	NCT03706040
		LY3471851 (Lilly)	rhIL-2 to T _{reg} cells	Ib	NCT04081350

Inmunidad innata/ adaptativa Th2

Strategy	Drug type and mode of application	Agent/company	Mode of action/target	Clinical development phase in atopic dermatitis	Clinical trial ID
Targeting the adaptive immune response (cont.)	Small molecule — oral	Adirforant (Novartis)	H4R	IIb	NCT03517566
		LEO 152020/JW1601 (LEO Pharma)	H4R	I	NCT04203836
		RPT193 (RAPT Therapeutics)	CCR4	IIa	NCT04271514
		Etrasimod (Arena Pharma)	S1PR1, S1PR4, S1PR5	IIb	NCT04162769
		SCD-044 (Sun Pharma)	S1PR1	IIa	NCT04684485
		LC51-0255 (LG Chem)	S1PR1	I	NA
		BMS-986166 (Bristol Myers Squibb)	S1PR1	IIa	NCT03038711
		KT-474 (Kymera)	S1PR1	Ib	NCT04772885
		AKP-19 (Akaal Pharma)	S1PR1	II	NA
		Lotamilast (RVT-501 /E6005) (Dermavant)	PDE4	II	NCT03394677, NCT02950922
	Small molecule — topical	Difamilast (OPA-15406/MM36) (Otsuka)	PDE4	II	NCT02945657
		DRM02 (Dermira)	PDE4	II	NCT01993420
		LEO 29102 (LEO Pharma)	PDE4	II	NCT01037881
		Roflumilast (AstraZeneca)	PDE4	II; pharmacokinetics and efficacy in paediatrics	NCT04156191
		Hemay-808 (Tianjin Hemay Pharmaceutical)	PDE4	II	NCT04352595
		PF-07038124 (Pfizer)	PDE4	II	NCT04664153
		BEN2293 (BenevolentAI)	TRK	I/II	NCT04737304
		HY209 (Shaperon)	GPCR19	IIa	NCT04530643
		VTP-38543 (Vitae Pharma)	Liver X receptor- β	I/II	NCT02655679
		ALX 101 (Ralexar)	Liver X receptor	II	NCT03859986



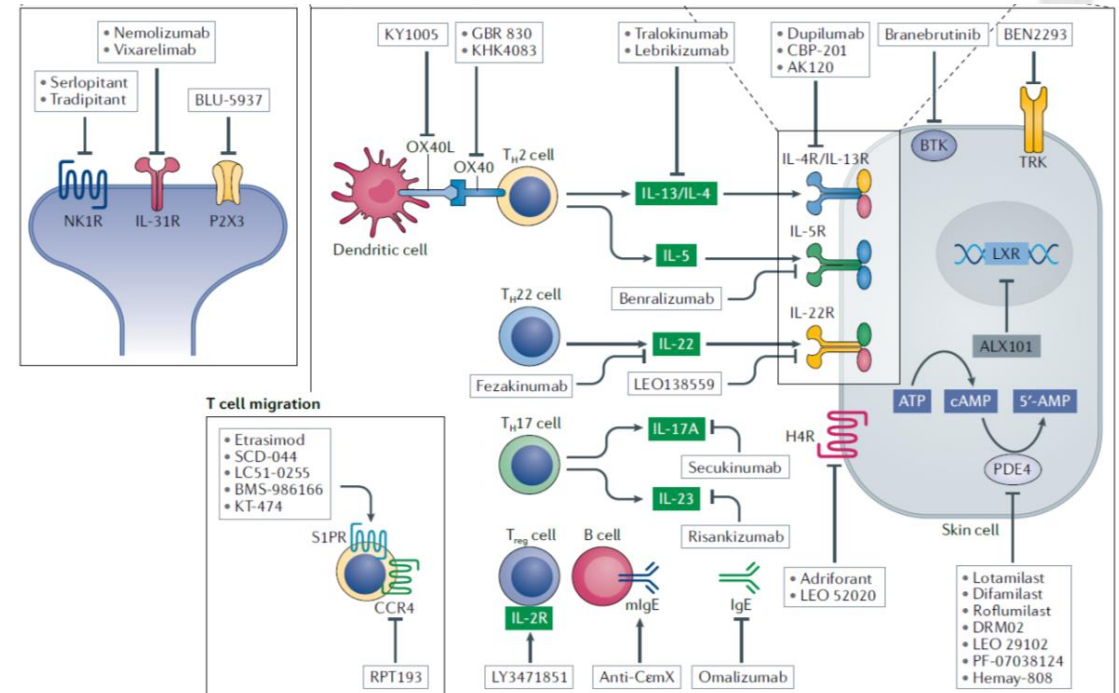
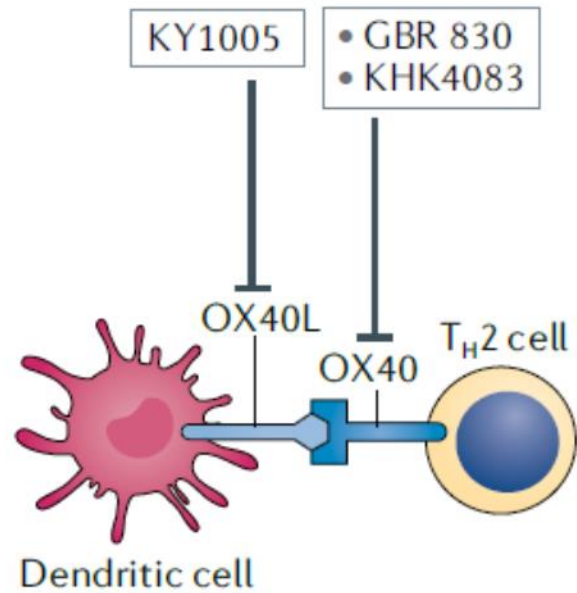
**Germans Trias i Pujol
Hospital**

[https://doi.org/10.1038/
s41573-021-00266-6](https://doi.org/10.1038/s41573-021-00266-6)

OX-OX40 pathway....¿la tercera via ?

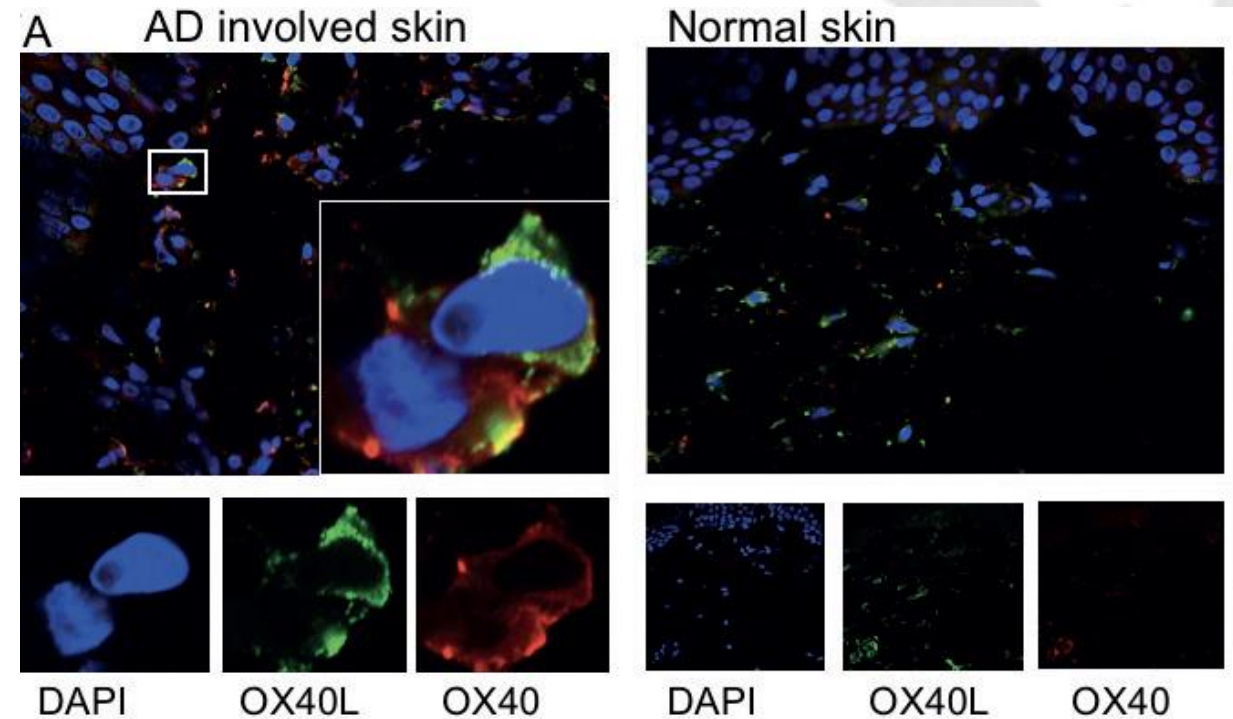


Adaptive immune response



OX40/OX40L en DA

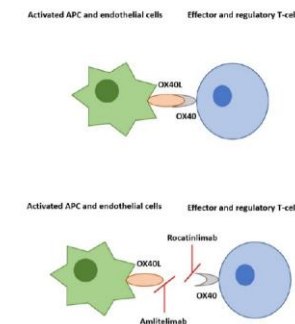
- OX40 expression is increased on skin homing T cells
- OX40 and OX40L are co-localized in the skin T-cell expression of OX40 and antigen-presenting cells
- *The signal through OX40 enhances T-cell clonal expansion and, especially, survival of TH2 cells*



The OX40 Axis is Associated with Both Systemic and Local Involvement in Atopic Dermatitis

Julie Sophie Hohwü ELSNER^{1,2}, Michael CARLSSON³, Julie Kristine STOUGAARD², Uffe NYGAARD¹, Matthias BUCHNER⁴, Regina FÖLSTER-HOLST⁴, Malene HVID^{2,5}, Christian VESTERGAARD¹, Mette DELEURAN¹ and Bent DELEURAN^{2,6}
Departments of ¹Dermato-Venereology and ⁴Rheumatology, Aarhus University Hospital, Departments of ²Biomedicine and ³Clinical Medicine, Aarhus University, Aarhus, ³Agilent Technologies Denmark ApS, Glostrup, Denmark, and ⁴Department of Dermatology, Allergology and Venereology, Kiel University Hospital, Kiel, Germany

Rocantinlimab(anti OX 40) en AD



Rocantinlimab
NCT03703102 2b

Multi-center, double-blind,
placebo-controlled
274 subjects with
moderate-to-severe AD
Randomized 1:1:1:1:1 to:

- rocatinlimab 150 mg SC Q4W
- rocatinlimab 600 mg SC Q4W
- rocatinlimab 300 mg SC Q2W
- rocatinlimab 600 mg SC Q2W
- placebo

18 weeks of treatment + 20 weeks
of follow-up

% EASI change from
baseline at week 16

% EASI change from baseline at
week 16 (−48.3% to −61.1%) vs.
placebo (−15.0%; all $p < 0.001$).
≥4-point improvement from
baseline in pruritus NRS score
(36.5% to 55.8%) vs. placebo (19.3%)
A *post hoc* analysis reported EASI
score improvements up to
20 weeks after treatment has ceased
At week 18, most
treatment-emergent adverse events
were pyrexia and chills after the
first administration of rocatinlimab,
nasopharyngitis, and atopic
dermatitis

Telazorlimab(ISB 80) – anti OX 40-

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ClinicalTrials.gov

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Phase 2b Study to Evaluate the Efficacy and Safety of ISB 830 in Adults With Moderate to Severe Atopic Dermatitis



The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. Read our [disclaimer](#) for details.

ClinicalTrials.gov Identifier: NCT03568162

[Recruitment Status](#) ⓘ : Completed

[First Posted](#) ⓘ : June 26, 2018

[Results First Posted](#) ⓘ : June 28, 2022

[Last Update Posted](#) ⓘ : August 23, 2022

[View this study on Beta.ClinicalTrials.gov](#)

Sponsor:

Johnson & Johnson



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Amlitelimab (anti OX 40L) en AD

Amlitelimab
NCT03754309 2a

Multi-center, parallel group,
double-blind, randomized, placebo
controlled

89 moderate-to-severe AD patients

Randomized 1:1:1 to:

- amlitelimab 200 mg loading
dose + 100 mg Q4W
- amlitelimab 500 mg loading
dose + 250 mg Q4W
- placebo

12 weeks of treatment + 24 weeks
of follow-up

% EASI change from
baseline to day 113
Incidence of
treatment-emergent
adverse events



Mean percentage change from
baseline in EASI at week 16:
amlitelimab low-dose (−80.1%)
and high-dose (−69.9%) vs.
placebo (−49.4%; $p = 0.009$ and
 $p = 0.072$, respectively).

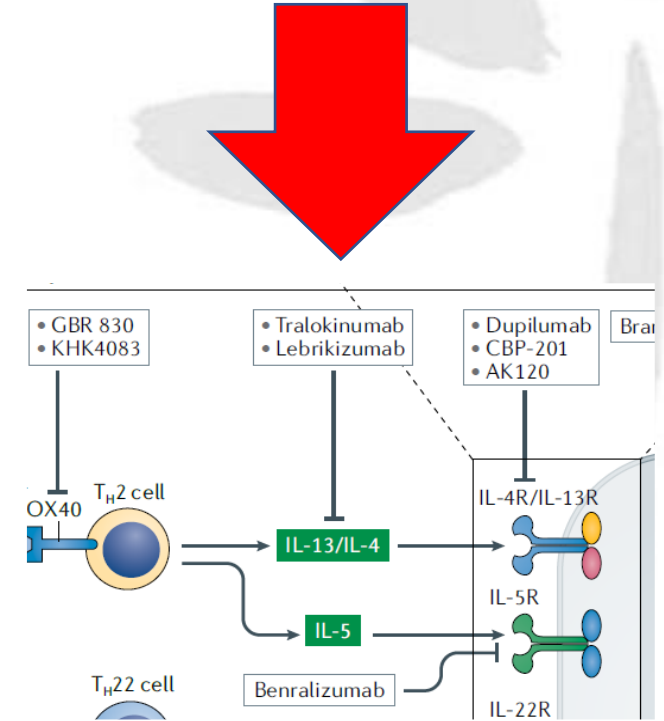
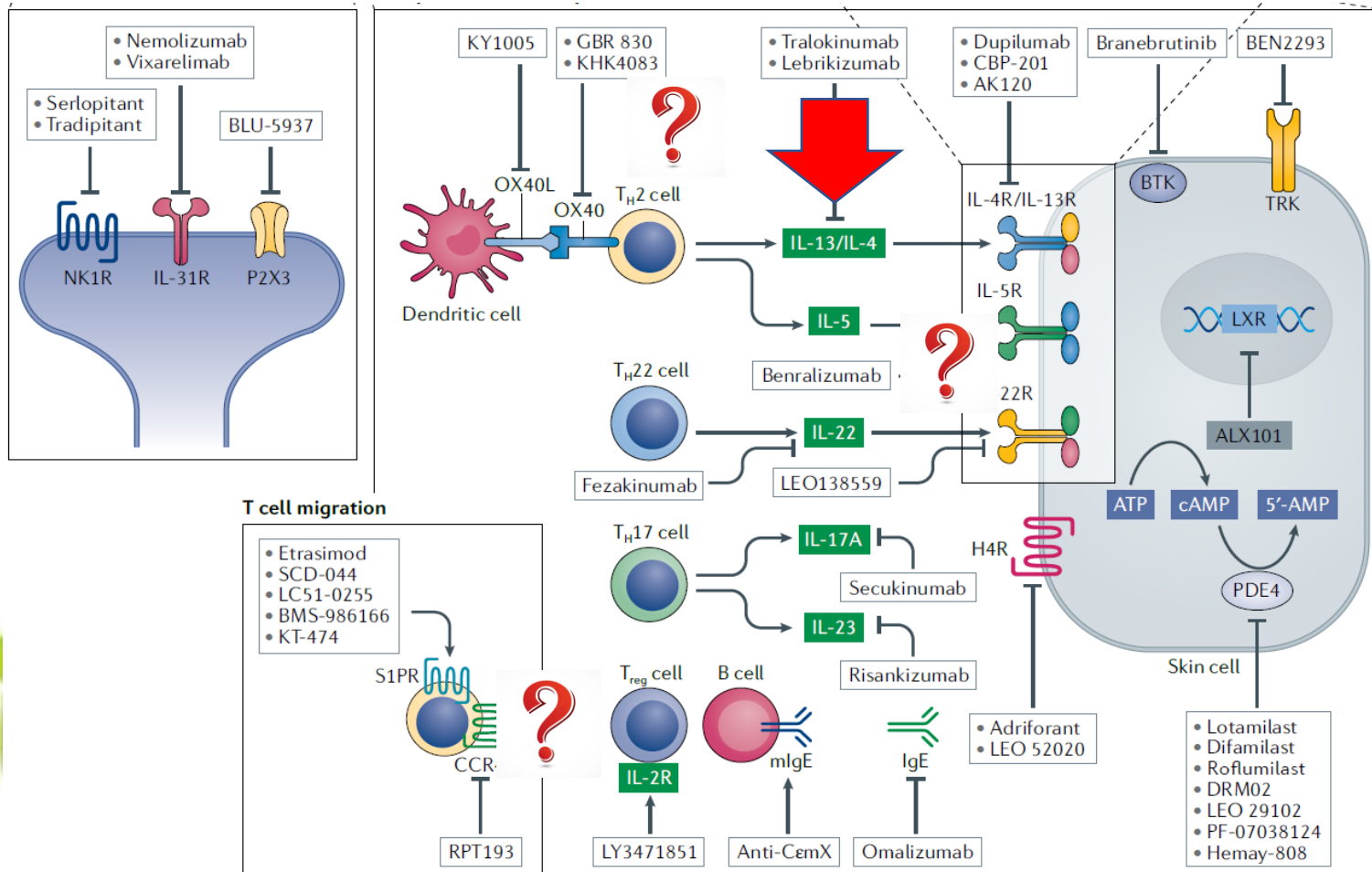
% EASI-75: 59.3% in amlitelimab
low-dose group, 51.9% in
amlitelimab high-dose group and
25.0% in placebo group.

Pruritus NRS ≥ 4 -point
improvement at week 16: 57.9% in
amlitelimab low-dose, 62.5% in
amlitelimab high-dose, and 38.1%
in placebo group.

No hypersensitivity or tolerability
events were reported.

AD—atopic dermatitis; EASI—Eczema Area and Severity Index; NRS—numerical rating scale; Q2W—every 2 weeks;
Q4W—every 4 weeks; SC—subcutaneous administration

Vía IL4/13



Vía IL4/13





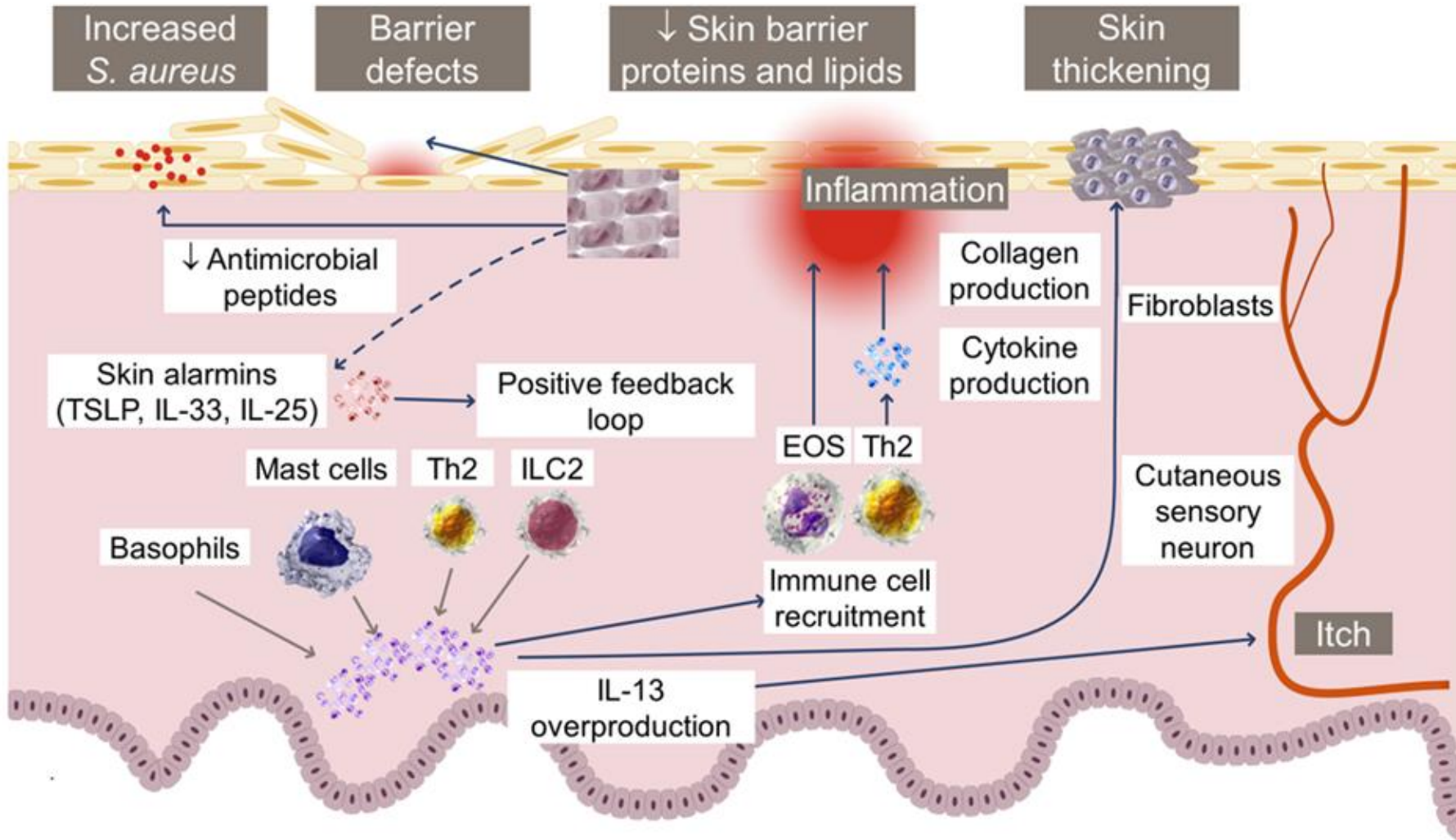
Via il 4/13

Nuevos anti IL 4/13

Table 14. Clinical trials targeting IL-4 e IL-13 in AD.

Target Molecule	Clin Trial Gov	Type of Study	Status
IL-4R α			
Anti-IL-4 α monoclonal antibody Dupilumab		FDA approval for AD March 2017	
Anti-IL-4 α monoclonal antibody CBP-201	NCT04444752	Phase II for AD	Completed
Anti-IL-4 α monoclonal antibody CBP-201	NCT05017480	Phase II for AD	Recruiting
Anti-IL-4 α monoclonal antibody AK120 (Akesobio)	NCT04256174	Phase Ib for AD	Completed
Anti-IL-4 α monoclonal antibody AK120 (Akesobio)	NCT05048056	Phase II for AD	Recruiting

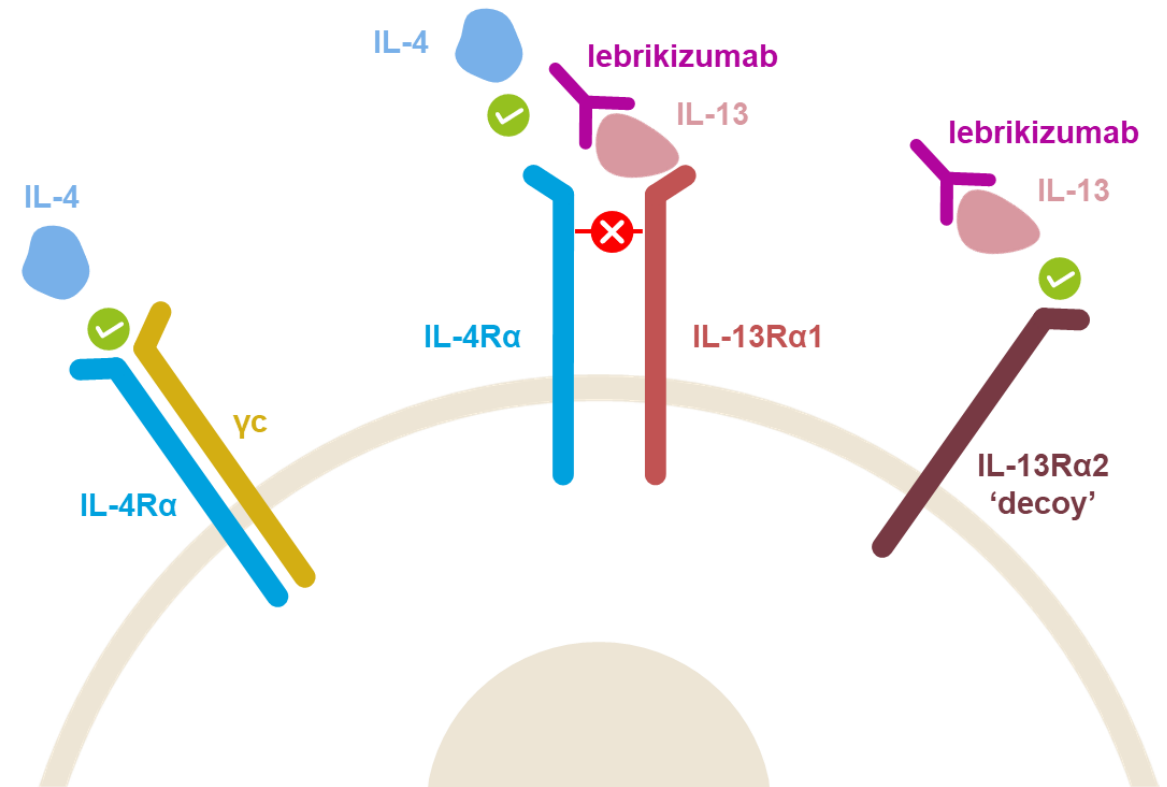
IL-13 en dermatitis atópica



IL-13 is overexpressed by different cell types in the skin of AD. This Th2 cytokine has a wide impact, including the decrease of the barrier function, inducing itch, and affecting the microbiome, particularly *S. aureus*. Adapted from Bieber T. *Allergy*. 2020;75:54-62.

Lebrikizumab. MoAb anti IL13

- Lebrikizumab is a novel, high-affinity immunoglobulin G4 monoclonal antibody targeting interleukin (IL)-13
- Lebrikizumab selectively prevents formation of the IL-13R α 1/IL-4R α heterodimer receptor signaling complex, thus blocking IL-13 signaling^{1,2}
- Lebrikizumab does not prevent the binding of IL-13 to the IL-13R α 2 (decoy) receptor, which allows the internalization of IL-13 into the cell³



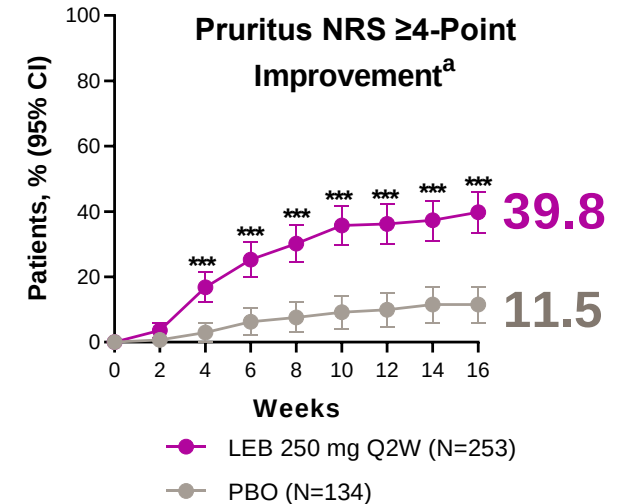
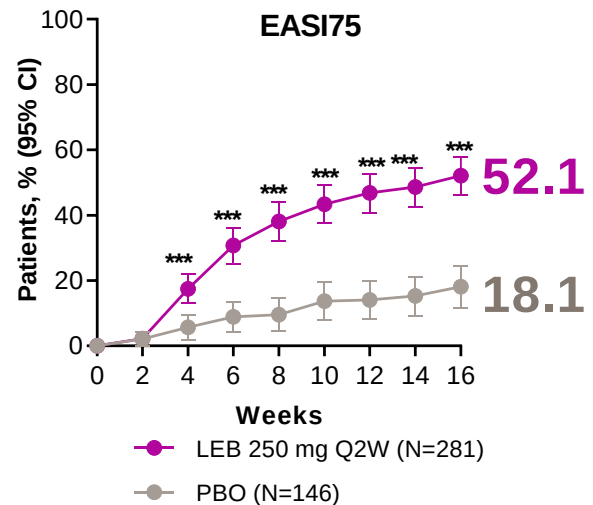
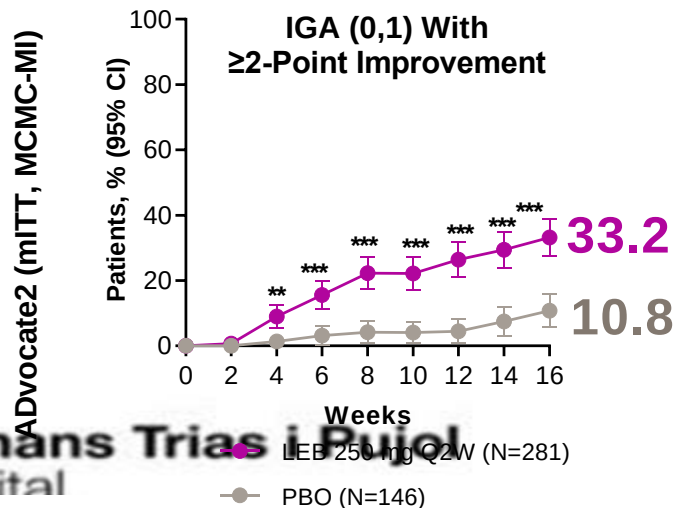
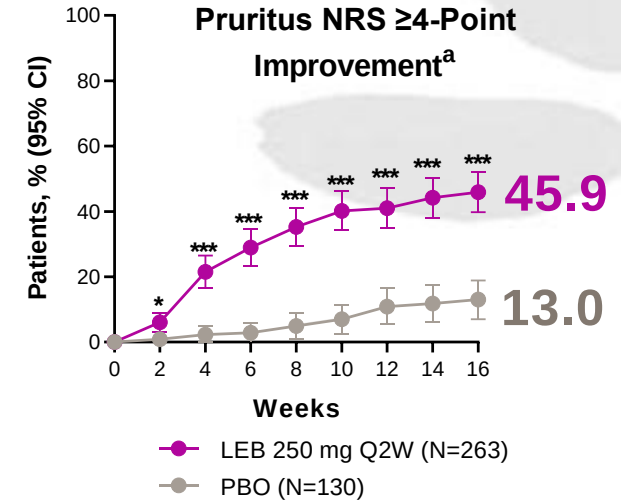
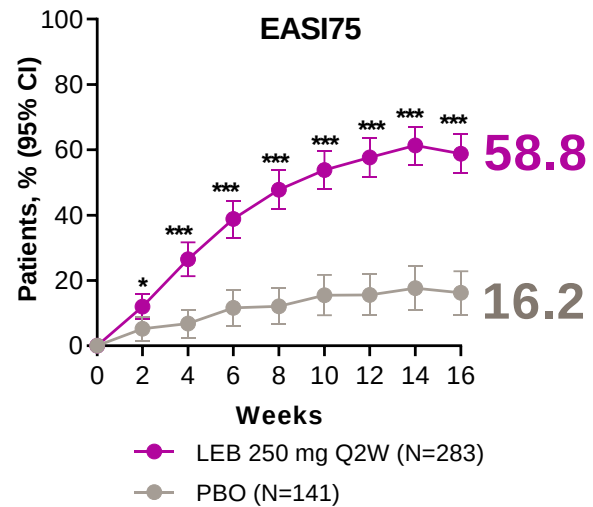
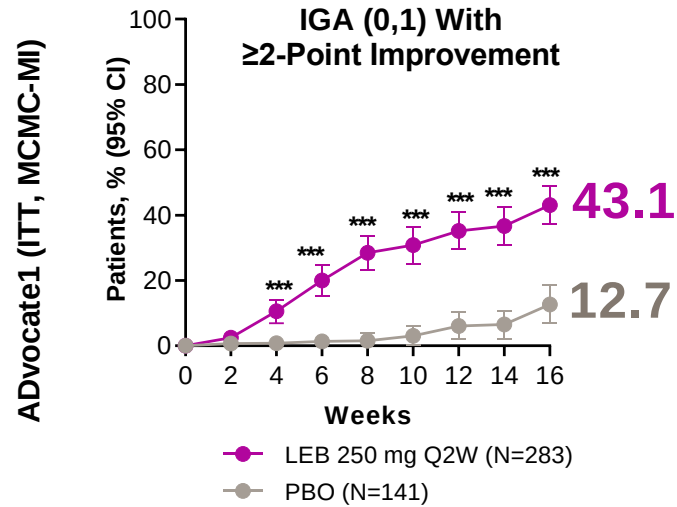
1. Simpson EL, et al. *J Am Acad Dermatol*. 2018;78:863-871.e11.

2. Gonçalves F, et al. *Drugs Context*. 2021;10:2021-1-7.

3. Wulur I, et al. Presented at 4th Inflammatory Skin Disease Summit. 2021.

IL=interleukin

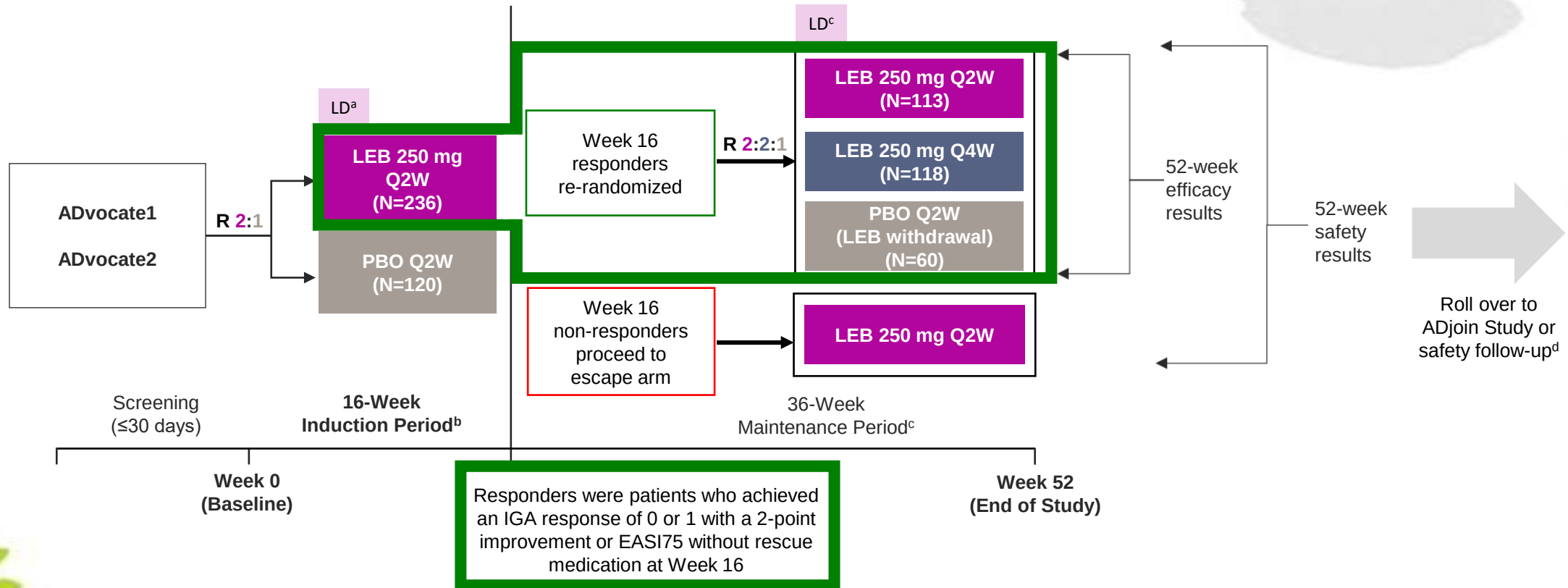
Week 16 Efficacy Endpoints



* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ vs. PBO based on the Cochran-Mantel-Haenszel test stratified by geographic region (USA vs. Europe vs. rest of world), age (adolescents 12 to <18 vs. adults ≥ 18 years), and disease severity (baseline IGA score of 3 vs. 4). Data after rescue medication or treatment discontinuation due to lack of efficacy were set to baseline values; missing data due to other reasons were imputed with MCMC-MI within treatment arms. ^a For patients with Pruritus NRS ≥ 4 at baseline CI=confidence interval; EASI75=75% improvement from baseline in Eczema Area and Severity Index score; IGA=Investigator's Global Assessment; ITT=Intent-to-Treat; LEB=lebrikizumab; MCMC-MI=Markov Chain Monte Carlo multiple imputation; mITT=modified ITT; NRS=Numeric Rating Scale; PBO=placebo; Q2W=every 2 weeks

Study Design

ADvocate1 and ADvocate2

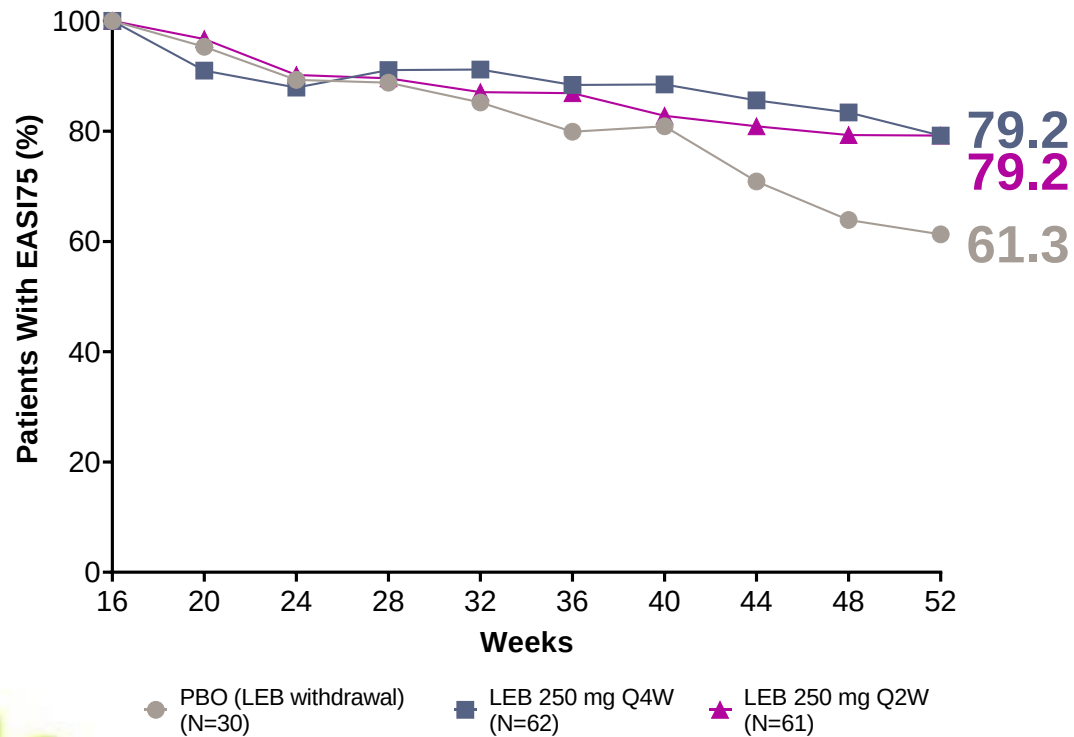


^a LEB-treated patients received a 500-mg LD at Weeks 0 and 2; ^b Patients who used rescue therapy (including topical) during the Induction Period were considered to be non-responders; ^c Responders who received PBO and were re-randomized to LEB received an LD of LEB 500 mg at Week 16 or at Weeks 16 and 18, based on the active treatment group assigned in the Maintenance Period; ^d Patients who completed the study were offered treatment in ADjoin; otherwise, patients participated in a safety follow-up 12 weeks after their last dose

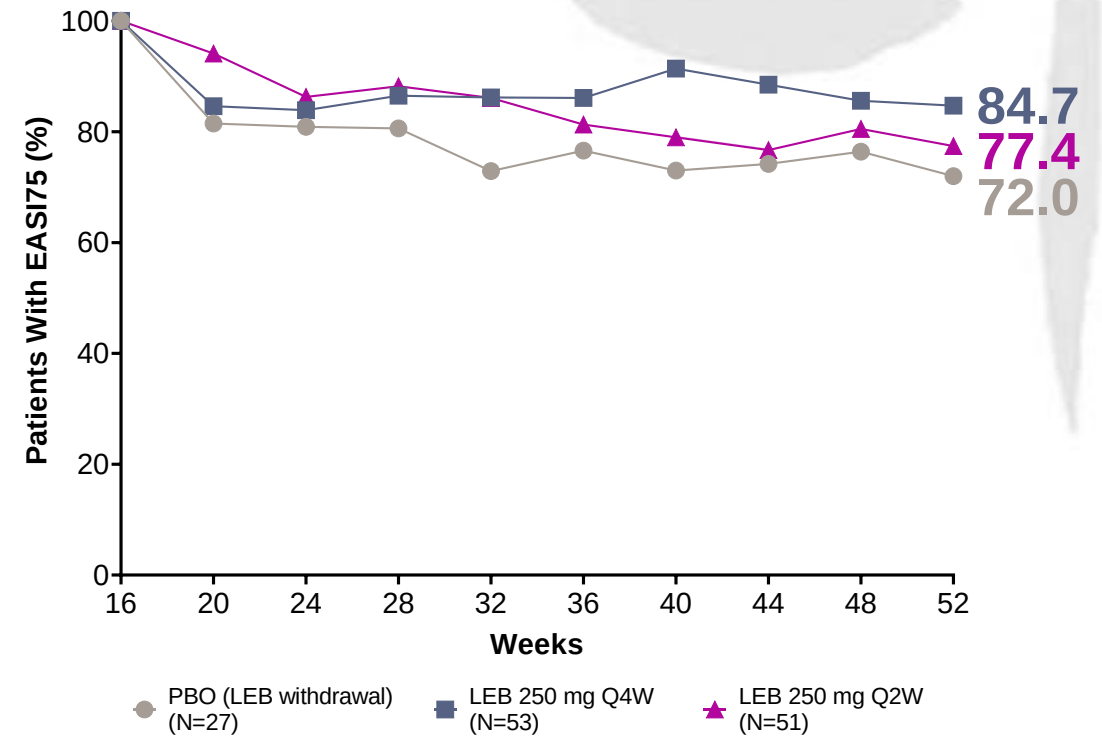
EASI75=75% improvement from baseline in Eczema Area and Severity Index score; IGA=Investigator's Global Assessment; LD=loading dose; LEB=lebrikizumab; PBO=placebo; Q2W=every 2 weeks; Q4W=every 4 weeks; R=randomization

Maintenance of EASI75 Over 52 Weeks

ADvocate1 (MPP,^a MCMC-MI)



ADvocate2 (mMPP,^a MCMC-MI)



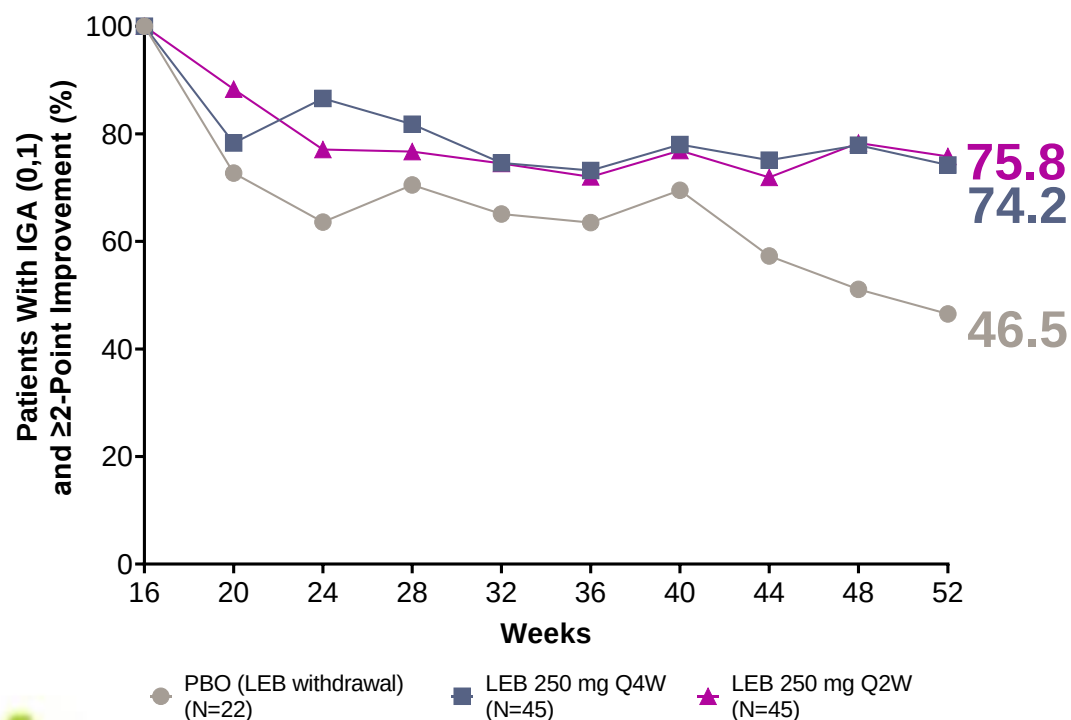
Note: Patients who received systemic rescue medication, discontinued treatment due to lack of efficacy, or transferred to the escape arm had values set to their baseline value subsequent to this time through Week 52; patients who received topical rescue medication or discontinued treatment due to other reasons had values set to missing subsequent to this time through Week 52; all the missing data were imputed with MCMC-MI

^a Patients who achieved EASI75 at Week 16

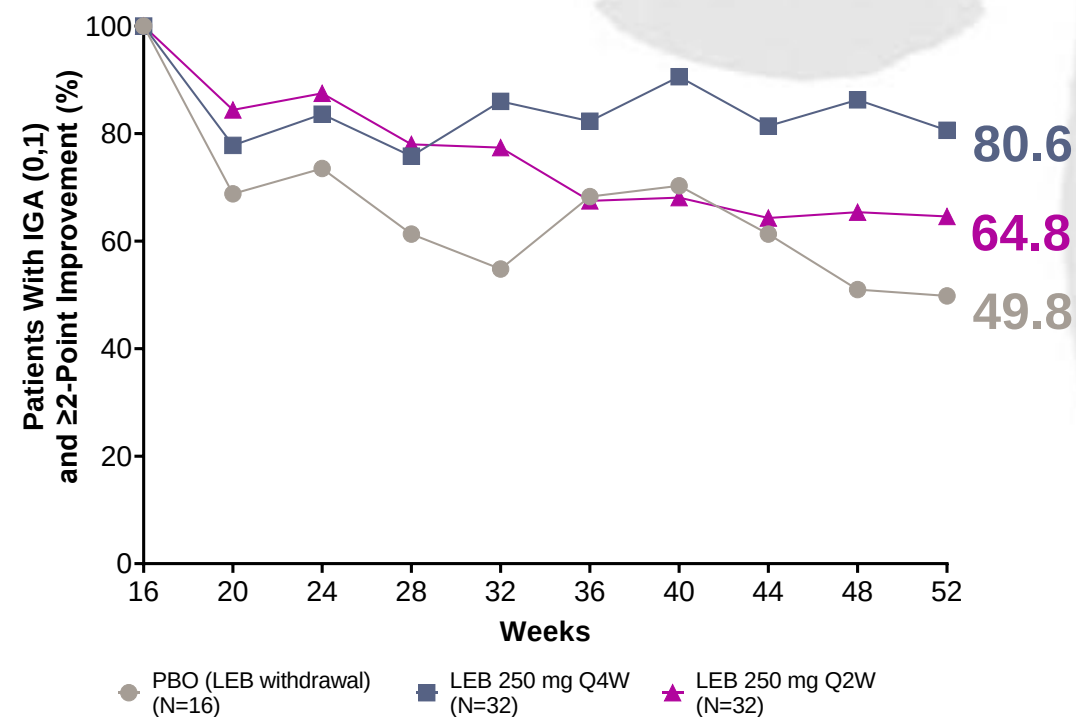
EASI75=75% improvement from baseline in Eczema Area and Severity Index score; LEB=lebrikizumab; MCMC-MI=Markov Chain Monte Carlo multiple imputation; mMPP=modified MPP; MPP=Maintenance Primary Population; PBO=placebo; Q2W=every 2 weeks; Q4W=every 4 weeks

Maintenance of IGA (0,1) and ≥ 2 -Point Improvement Over 52 Weeks

ADvocate1 (MPP,^a MCMC-MI)



ADvocate2 (mMPP,^a MCMC-MI)



Efficacy of Lebrikizumab in Patients Who Did Not Achieve Protocol-Defined Criteria for Response After Initial 16 Weeks of Therapy

42152

Emma Guttman-Yassky,¹ David Rosmarin,² Jacob P. Thyssen,³ Stephan Weidinger,⁴ Thomas Bieber,⁵ Hany Elmaraghy,⁶ Amber Reck Atwater,⁶ Evangeline Pierce,⁶ Chenjia Xu,⁶ Helena Agell,⁷ Eric Simpson⁸

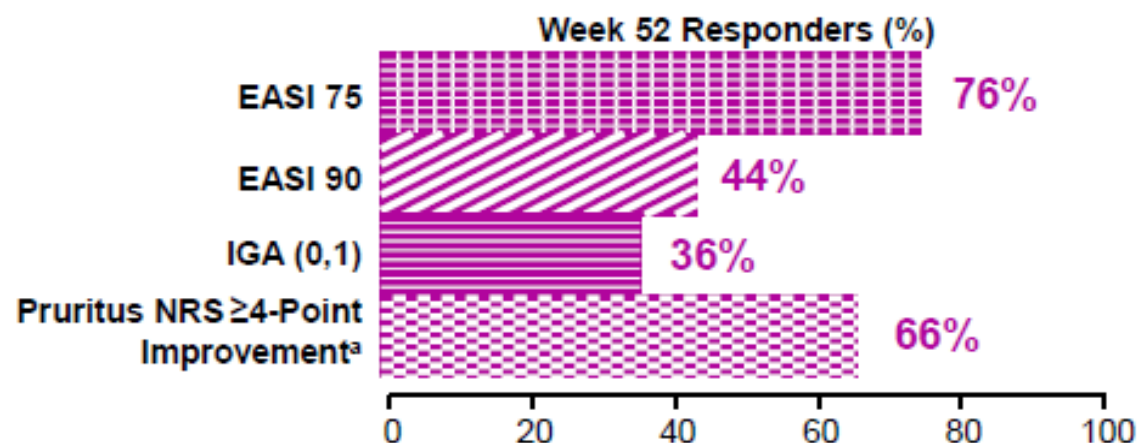
¹Icahn School of Medicine at Mount Sinai, New York, USA; ²Indiana University School of Medicine, Indianapolis, USA; ³Bispebjerg Hospital, University of Copenhagen, Copenhagen, Denmark; ⁴University Hospital Schleswig-Holstein, Kiel, Germany;

⁵University Hospital of Bonn, Bonn, Germany; ⁶Eli Lilly and Company, Indianapolis, USA; ⁷Almirall, S.A., Barcelona, Spain; ⁸Oregon Health & Science University, Portland, USA

SUMMARY OF KEY FINDINGS

Pooled ADvocate1&2 MEP: **LEB Q2W** Weeks 16-52

Patients with AD who were considered per-protocol non-responders at Week 16 improved over the long term with **lebrikizumab** treatment



^a In patients who had Pruritus NRS ≥4 points at baseline



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AAD 2023

Efficacy of Lebrikizumab in Adolescent Patients With Moderate-to-Severe Atopic Dermatitis: 16-Week Results From Three Randomized Phase 3 Clinical Trials

43072

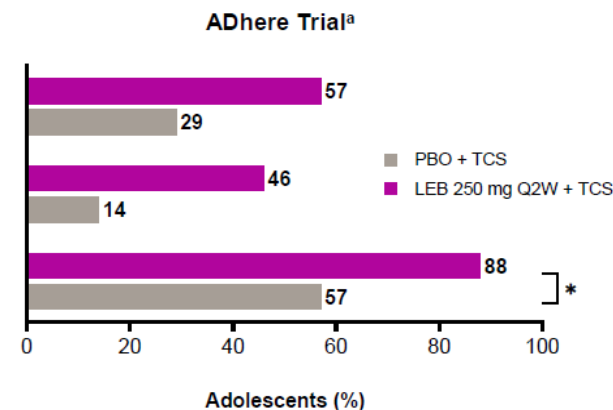
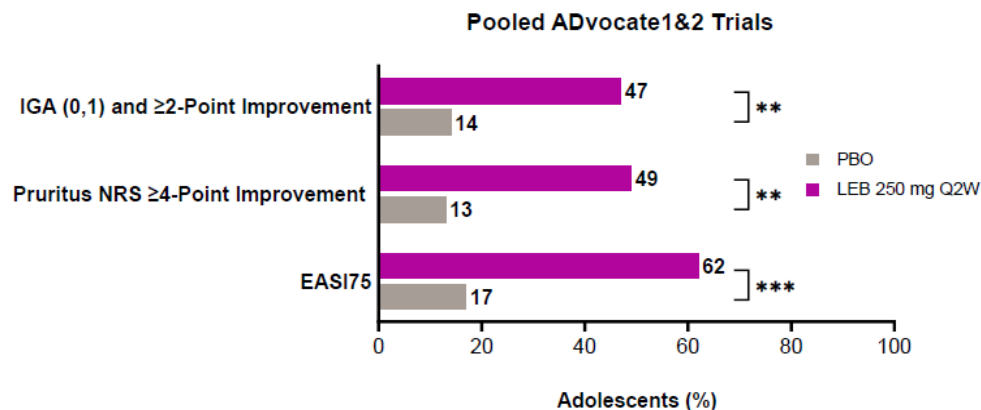
Adelaide Hebert,¹ Carsten Flohr,² H. Chih-ho Hong,³ Alan Irvine,⁴ Evangeline Pierce,⁵ Hany Elmaraghy,⁵ Wen Xu,⁵ Sreekumar Pillai,⁵ Zach Dawson,⁵ Elaine Siegfried,⁶ Stephan Weidinger⁷

¹UTHealth McGovern Medical School, Houston, USA; ²St John's Institute of Dermatology, King's College London, London, UK; ³University of British Columbia, and Probit Medical Research, British Columbia, Canada; ⁴Children's Health Ireland, Dublin, Ireland;

⁵Eli Lilly and Company, Indianapolis, USA; ⁶Saint Louis University, St. Louis, USA; ⁷University Hospital Schleswig-Holstein, Kiel, Germany

SUMMARY OF KEY FINDINGS

Lebrikizumab, with or without TCS, demonstrated clinical efficacy at 16 weeks in adolescents with moderate-to-severe AD



* p<0.05; ** p<0.01; *** p<0.001 vs. PBO

^a ADhere included TCS for both the LEB and PBO groups



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AAD 2023

FILTER NEWS

- ▶ All (760,842)
- ▶ Topic (719,775)
- ▶ Industry (142,515)
- ▶ Hotbed/Location (693,737)
- ▶ Career Advice (3,784)

ASLAN Pharmaceuticals Announces Completion of Recruitment in Phase 2b TREK-AD Study of Eblasakimab in Atopic Dermatitis Patients

Published: Feb 24, 2023

Eblasakimab

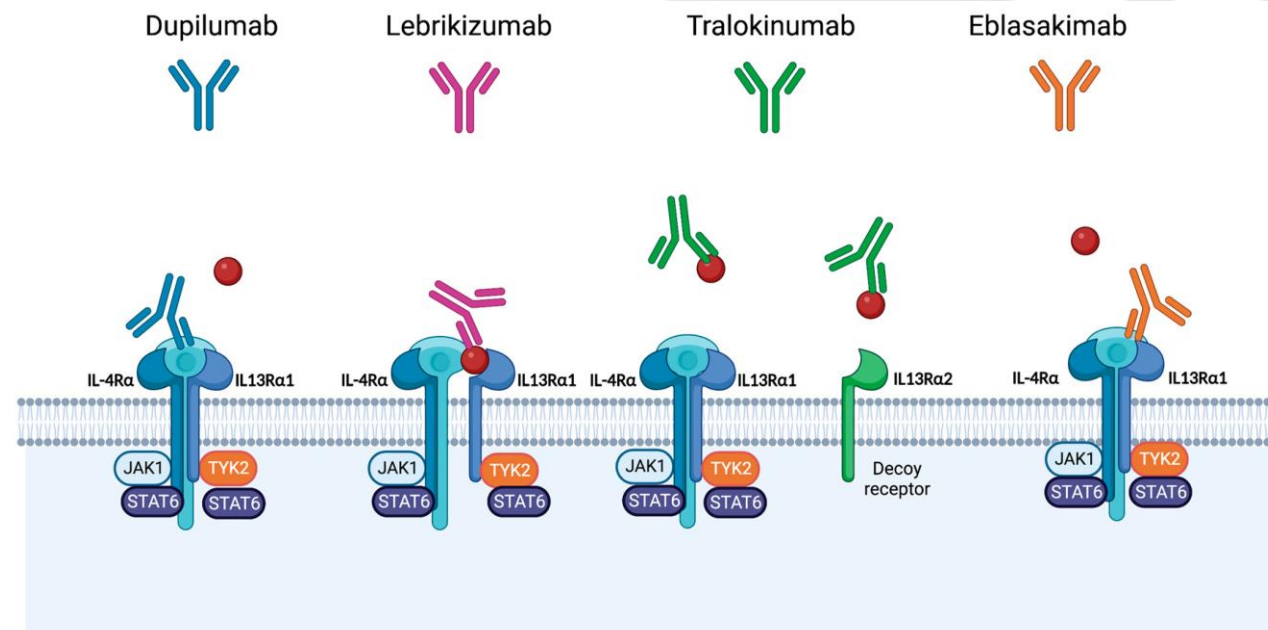
is a monoclonal antibody that targets the IL-13R1, a subunit of the type 2 receptor, interfering with the signaling of IL-13 and IL-4

EASI 75 was achieved in 50% of patients in the 200 mg group, 57% in the 400 mg group, and 50% in the 600 mg group, as opposed to 13% in the placebo group ($p = 0.018$)



<https://www.biospace.com/article/releases/aslan-pharmaceuticals-announces-completion-of-recruitment-in-phase-2b-trek-ad-study-of-eblasakimab-in-atopic-dermatitis-patients/>

Eblasakimab



Pharmaceutics 2023, 15, 568. <https://doi.org/10.3390/pharmaceutics15020568>



Review

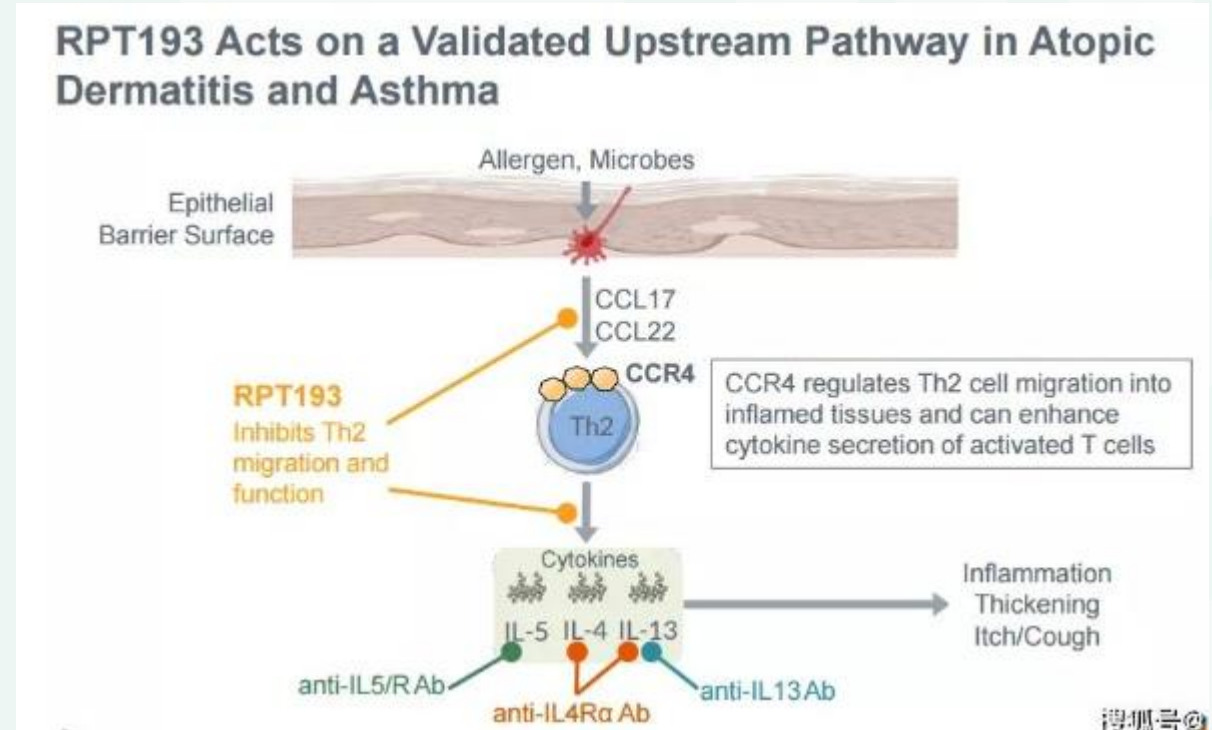
Targeting Interleukin 13 for the Treatment of Atopic Dermatitis

Yuliya Lytvyn ¹ and Melinda Gooderham ^{2,3,4,*}

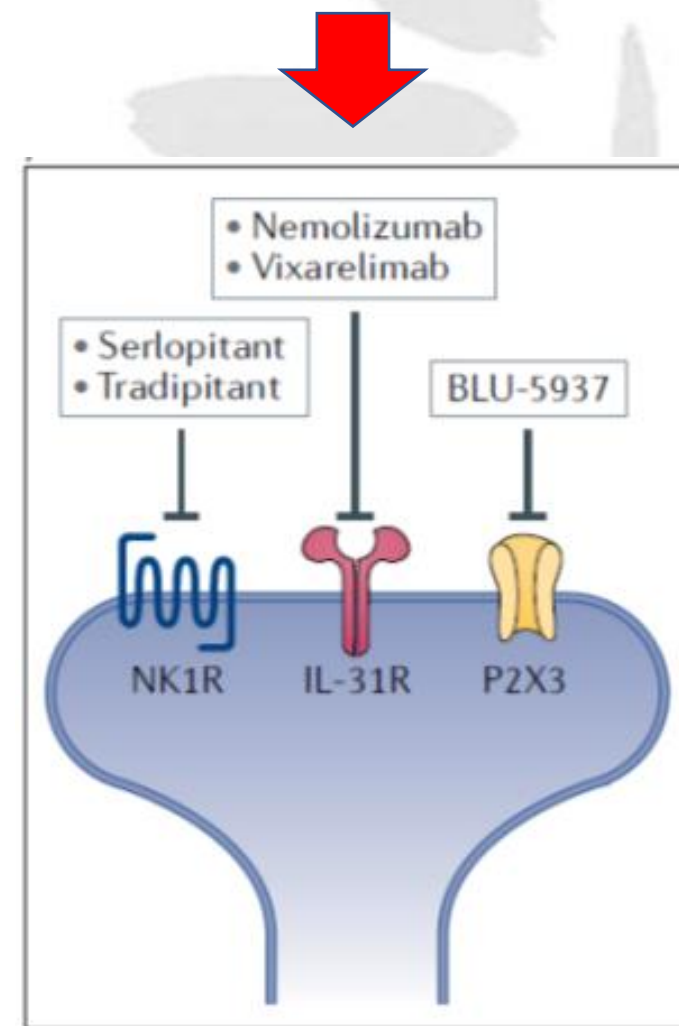
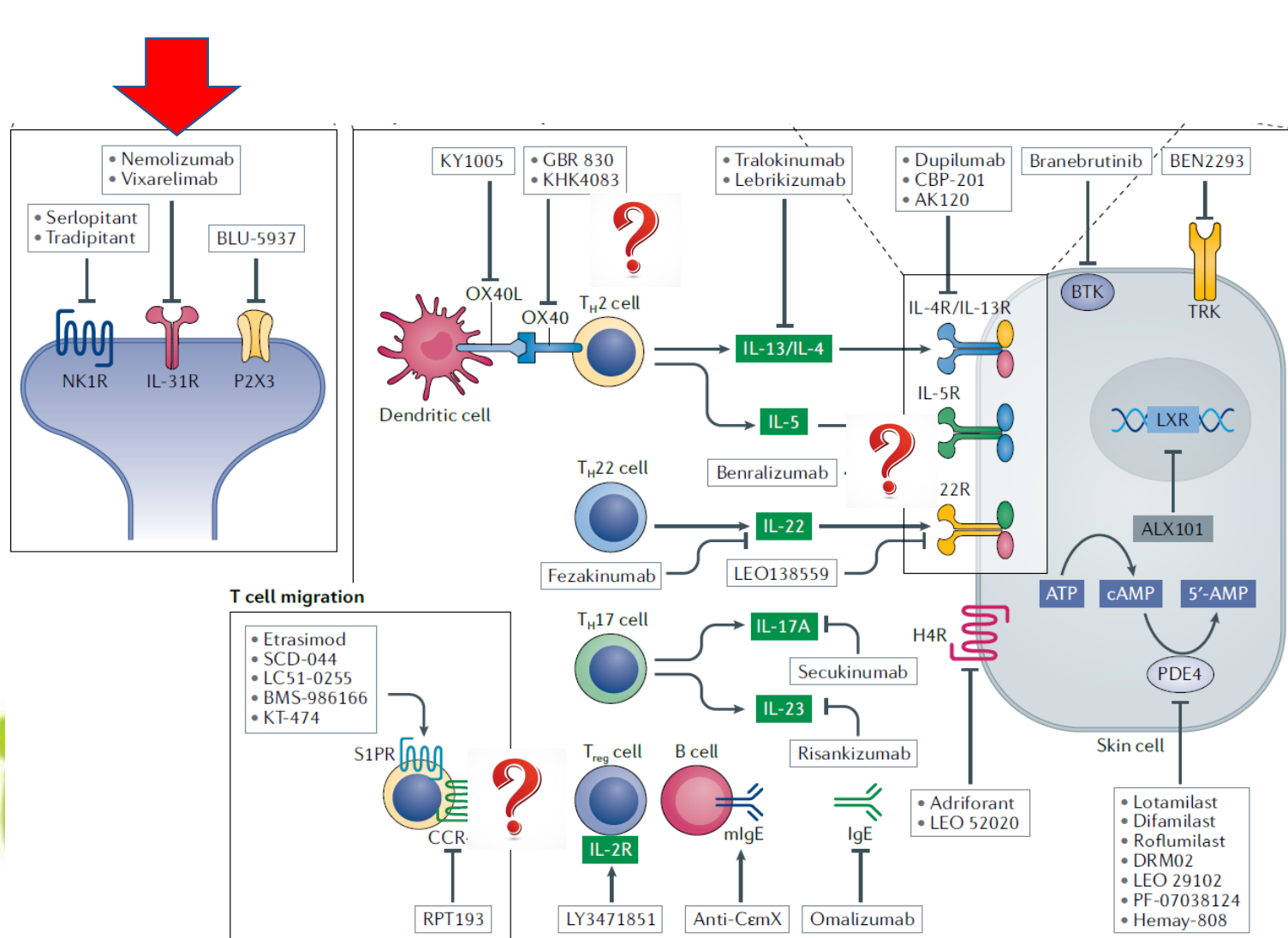
RPT193

RPT193 is an orally active inhibitor of CCR4, blocks the recruitment of Th2 inflammatory immune cells into inflamed tissues. RPT193 can be used for allergic inflammation in atopic dermatitis, asthma, and other diseases research.

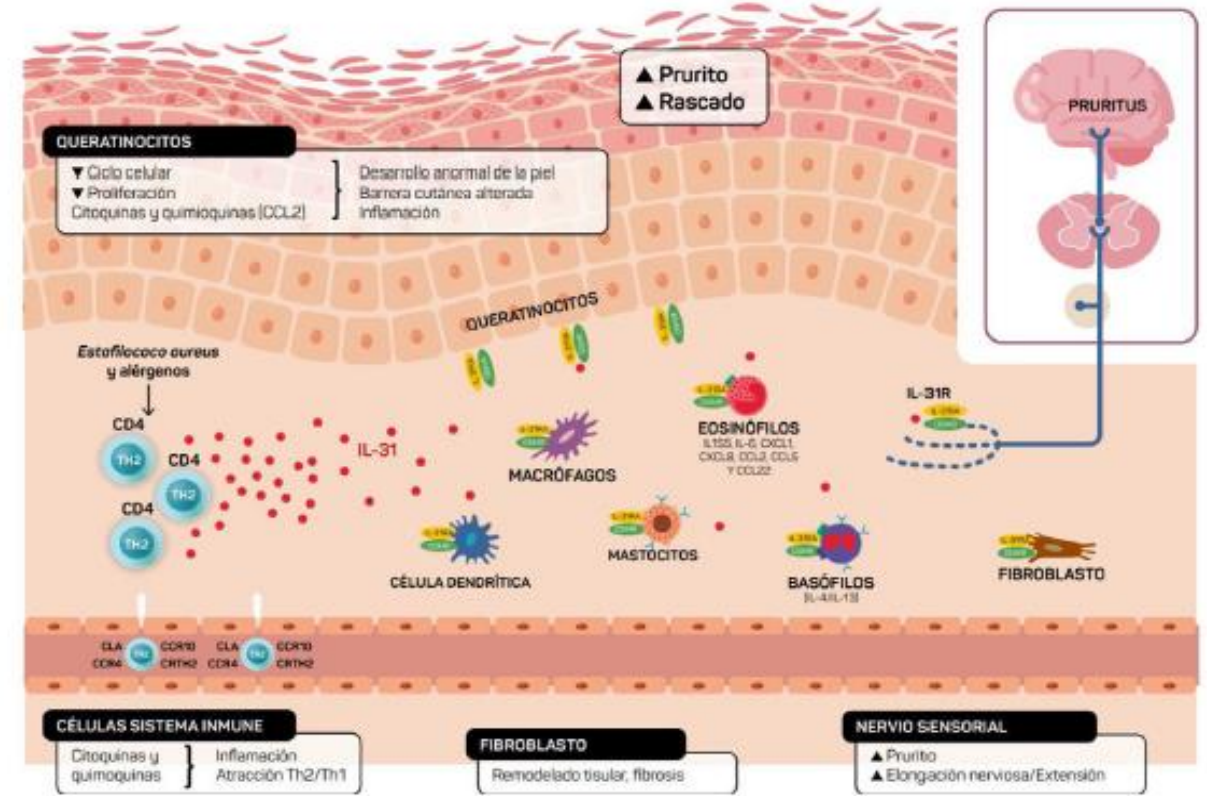
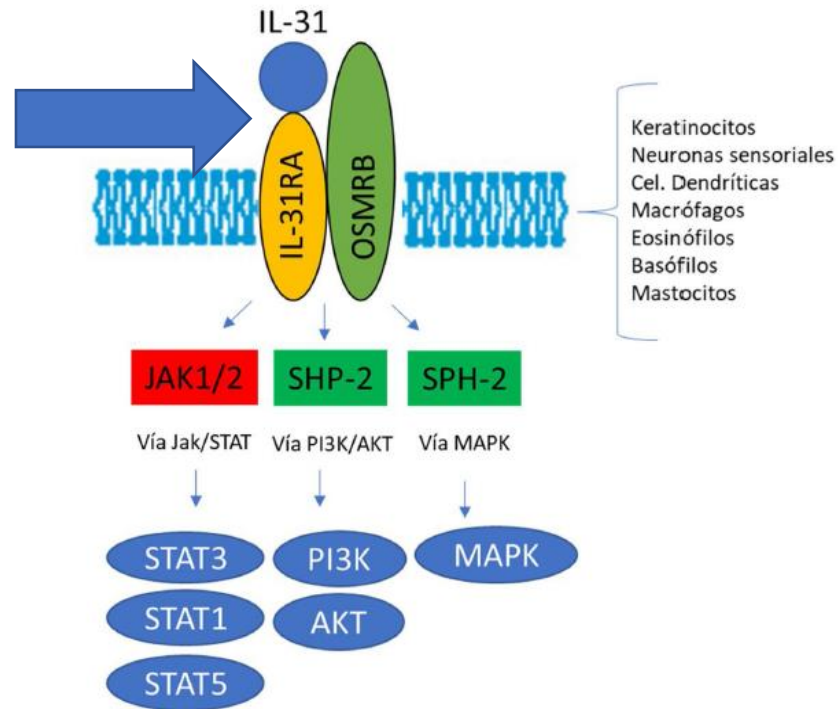
Phase 2 development
Administered oral
Indications seeking:
Adults With Atopic Dermatitis



IL-31 La vía del prurito



Nemolizumab



ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA

ACTAS
Dermo-Sifiliográficas

Full English text available at
www.actasdermo.org



REVISIÓN

Nemolizumab: un innovador tratamiento biológico para el control de la interleuquina 31 (IL-31) clave en la dermatitis atópica y el prurigo nodular

E. Serra-Baldrich^{a,*}, L.F. Santamaría-Babi^b y J. Francisco Silvestre^c

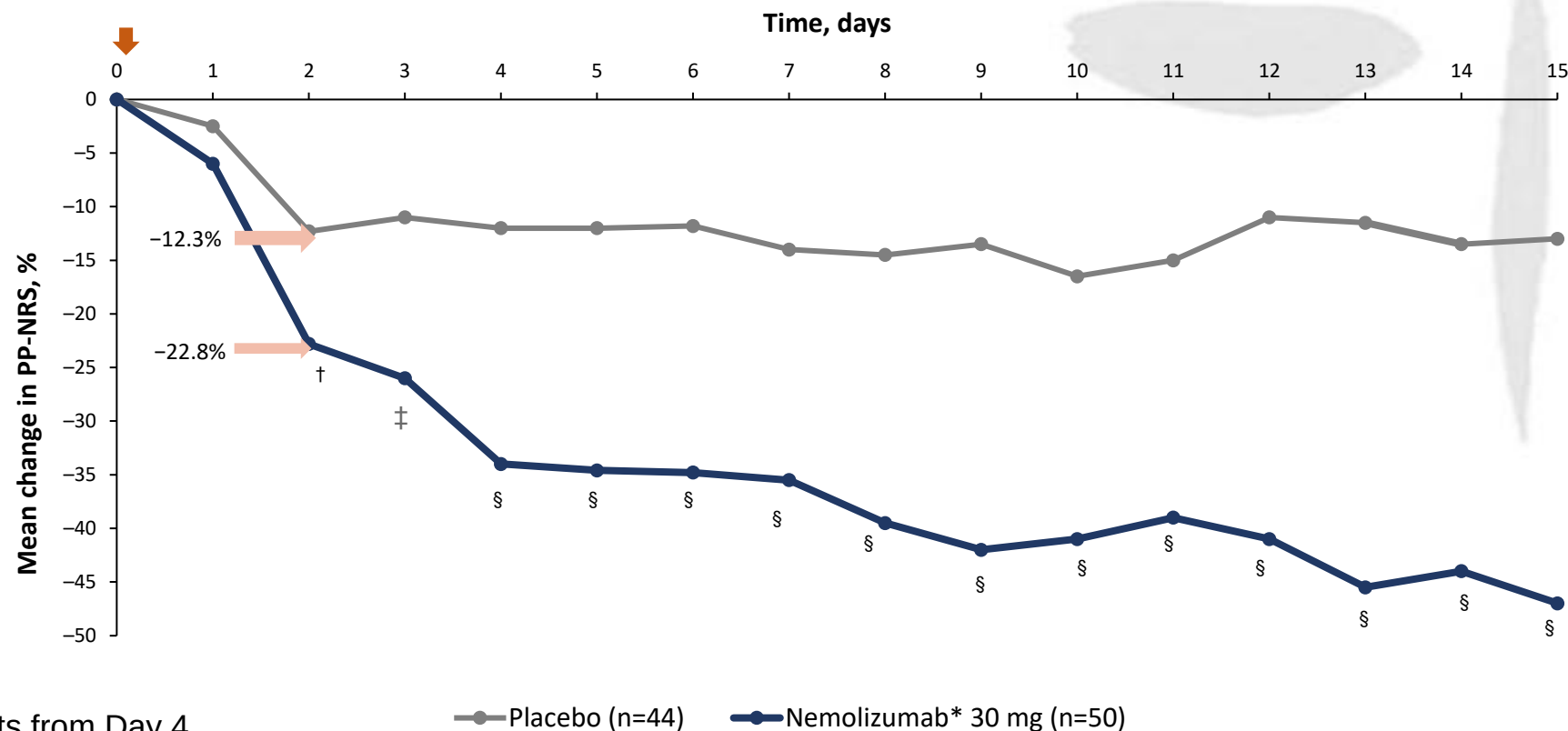


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ACTAS Dermo-Sifiliográficas 113 (2022) 674–684

There was a greater itch relief, apparent by Day 2, with nemolizumab* 30 mg vs placebo (*post-hoc* EASI ≥ 16)

Daily LS-mean percentage change from baseline in PP NRS from Day 1 to Day 15



A rapid improvement of itch and significant differences between the groups were observed from Day 2 for reductions in PP NRS (22.8% vs 12.3%, $p=0.005$)

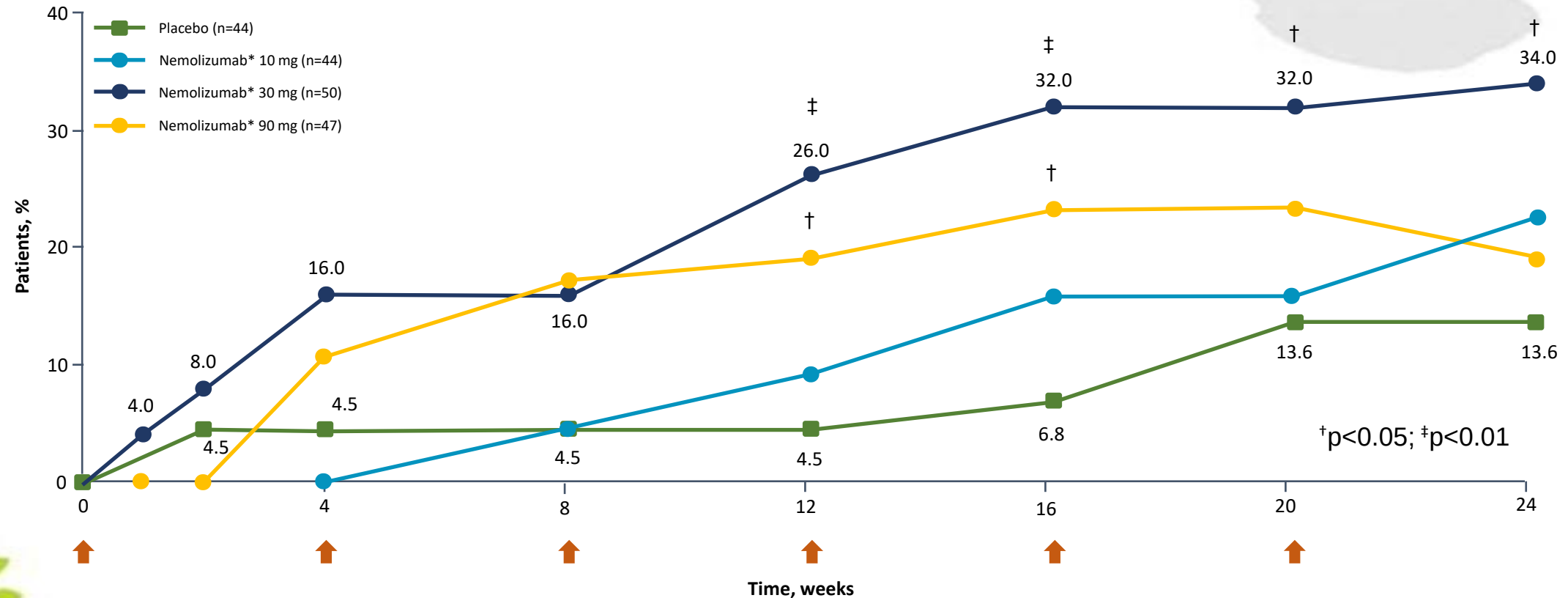
† $p<0.05$; ‡ $p<0.005$; § $p<0.001$ for all visits from Day 4

*Nemolizumab is an investigational product not approved in any jurisdiction for any indication. EASI, Eczema Area and Severity Index; LS, least squares; PP-NRS, Post-Pruritus Numerical Rating Scale. Silverberg JI, et al. *J Eur Acad Dermatol Venereol* 2021; 35: 1562–1568. Nemolizumab is associated with a rapid improvement in atopic dermatitis signs and symptoms: subpopulation (EASI ≥ 16) analysis of randomized phase 2B study, Silverberg JI et al. Copyright © 2021 Journal of The European Academy of Dermatology and Venereology.

↓ Nemolizumab* administration

Nemolizumab* *post-hoc* analysis (EASI ≥ 16): IGA success rates

A significantly greater proportion of patients reached IGA 0/1 with nemolizumab* 30 mg vs placebo from Week 12 onwards^{1,2}

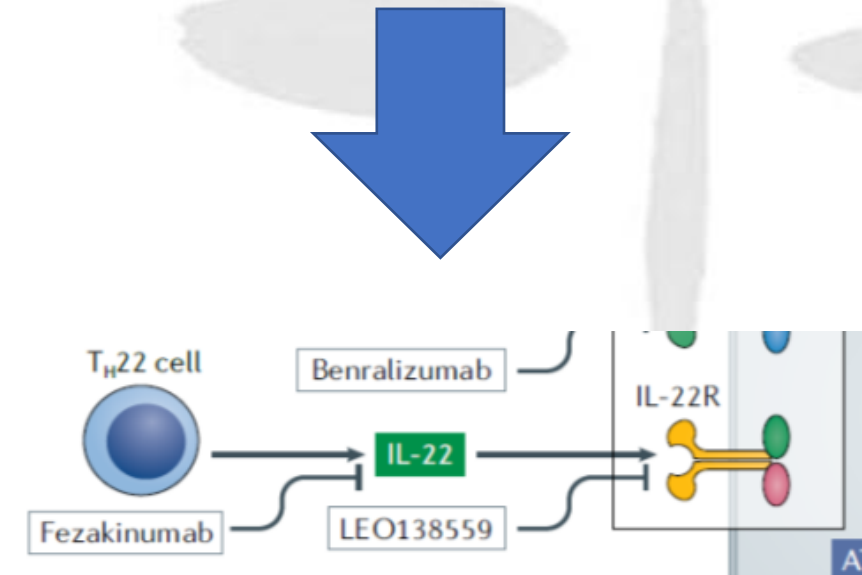
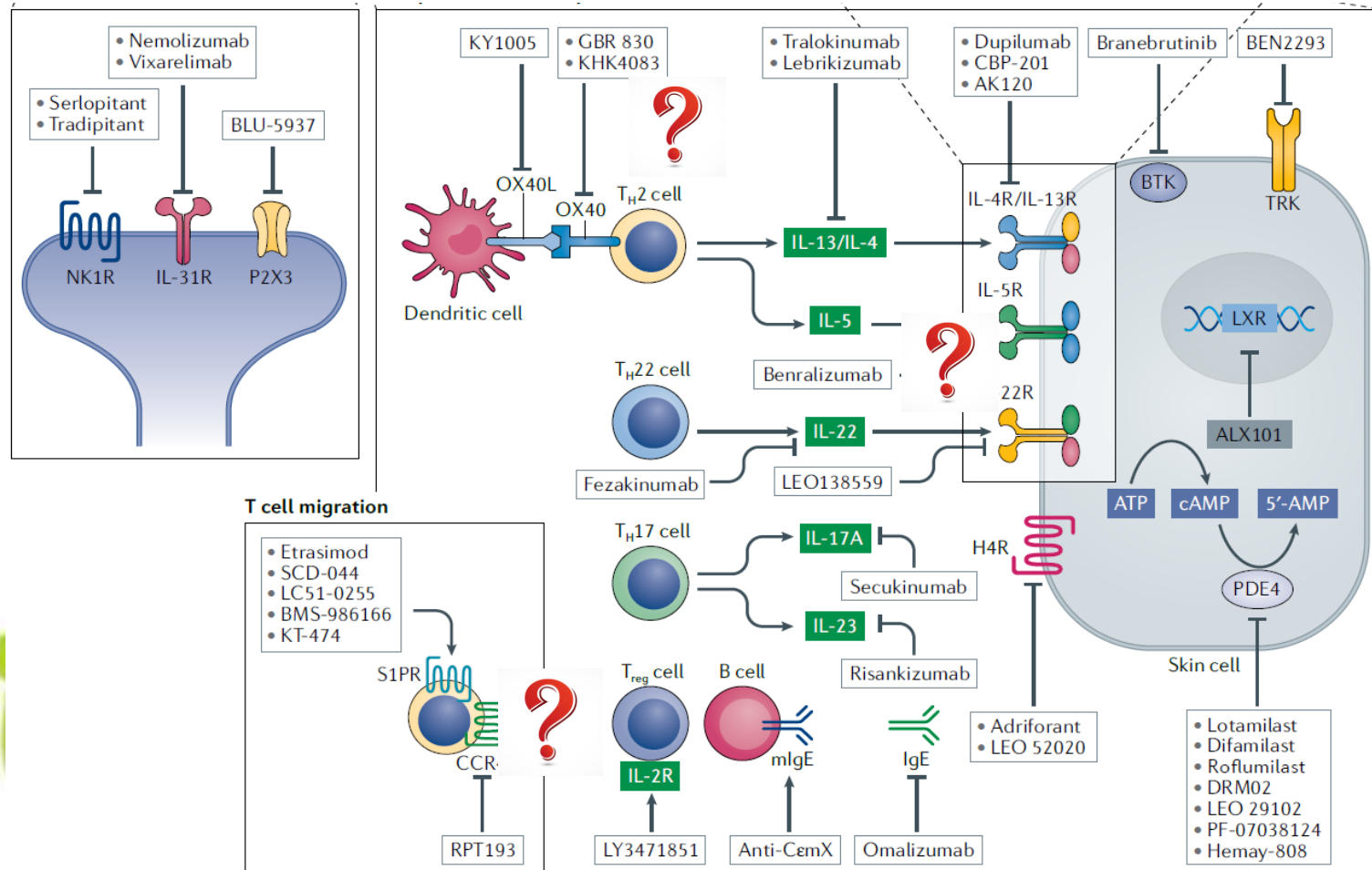


*Galderma is investigating the use of nemolizumab and has not received approval in any jurisdiction for any indication.
EASI, Eczema Area and Severity Index; IGA, Investigator Global Assessment.

1. Silverberg JI, et al. *J Eur Acad Dermatol Venereol* 2021; 35: 1562–1568. Nemolizumab is associated with a rapid improvement in atopic dermatitis signs and symptoms: subpopulation (EASI ≥ 16) analysis of randomized phase 2B study, Silverberg JI et al. Copyright © 2021 Journal of The European Academy of Dermatology and Venereology; 2. Galderma. Data on file. Nemolizumab in AD Phase 2b trial efficacy data (EASI ≥ 16 subpopulation). 2019.

Nemolizumab* administration ↑

Inmunidad adaptativa: Vía IL22



IL-22 R1 en DA

Table 7. Clinical trials targeting IL-22 in AD.

Target Molecule	Clin Trial Gov	Type of Study	Status
IL-22			
Anti-IL-22 antibody Fezakinumab (ILV-094)	NCT01941537	Phase II	Completed
IL-22R1			
Anti-IL-22R1 antibody LEO 138559	NCT04922021	Phase II for AD	Active, not recruiting
Anti-IL-22R1 antibody LEO 138559	NCT03514511	Phase I	Completed
Anti-IL-22R1 antibody LEO 138559	NCT05099133	Phase I	Completed
Anti-IL-22R1 antibody LEO 138559	NCT05470114	Phase II	Recruiting

ICH GCP > US Clinical Trials Registry > Clinical Trial NCT05470114

A Multi-omics Disease Signature Trial in Adult Patients With Moderate to Severe AD

July 21, 2022 updated by: [LEO Pharma](#)

A Randomized, Double-blinded, Active Comparator-controlled, 16-week, Single-site, Exploratory, Mechanistic Trial to Assess the Effect of LEO 138559 on the Molecular Signature and Safety in Adults With Moderate to Severe Atopic Dermatitis.

This clinical trial will investigate the effectiveness and safety of a new active ingredient (LEO 138559) in the treatment of moderate to severe atopic dermatitis (AD). It is given by subcutaneous injection. Some people in the trial will instead receive Dupixent® which is an approved treatment for moderate to severe AD. Dupixent® is also given by subcutaneous injection.

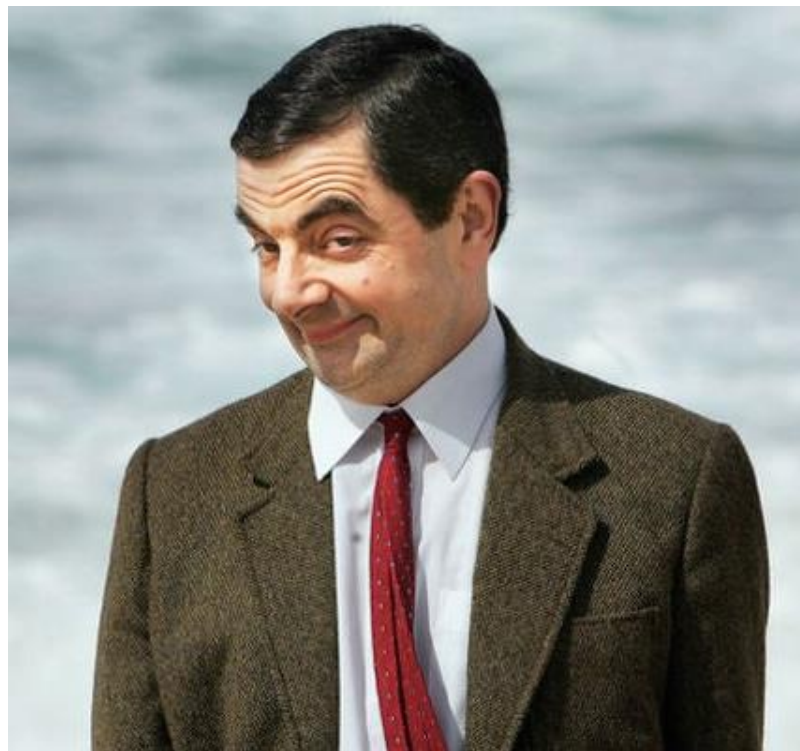
The main aim of this clinical trial is to investigate which changes in biomarkers in the skin are caused by LEO 138559 and Dupixent®.

The trial includes a screening phase of up to 4 weeks, followed by a treatment period of 16 weeks, and a safety follow-up period of 16 weeks.

Study Overview

STATUS	CONDITIONS	INTERVENTION / TREATMENT
Recruiting	Atopic Dermatitis	Drug: LEO 138559 Drug: Dupixent®

¿ Queréis oir el nombre definitivo.....?



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Rezpegaldesleukin !



- The IL-2 conjugate Treg stimulator, LY3471851, had a safety profile at the doses studied that supports further clinical development of LY3471851 in patients with AD
- A trend toward dose-dependent improvement was observed in EASI and vIGA-AD scores and EASI75, vIGA-AD (0,1), and Itch NRS ≥ 4 -point improvement responder rates with LY3471851 vs. placebo through 12 weeks of treatment
- Improvements with LY3471851 24 $\mu\text{g}/\text{kg}$ were sustained during follow-up to 48 weeks, up to 36 weeks following end of treatment
- Total Tregs and CD25^{bright} Tregs increased with LY3471851 vs. placebo up to Week 12

Nektar Therapeutics Presents Data for Rezpegaldesleukin (LY3471851) in Patients with Atopic Dermatitis and Psoriasis from Two Separate Clinical Studies at 2022 European Academy of Dermatology (EADV) Congress

PR Newswire Press Releases & Markets News

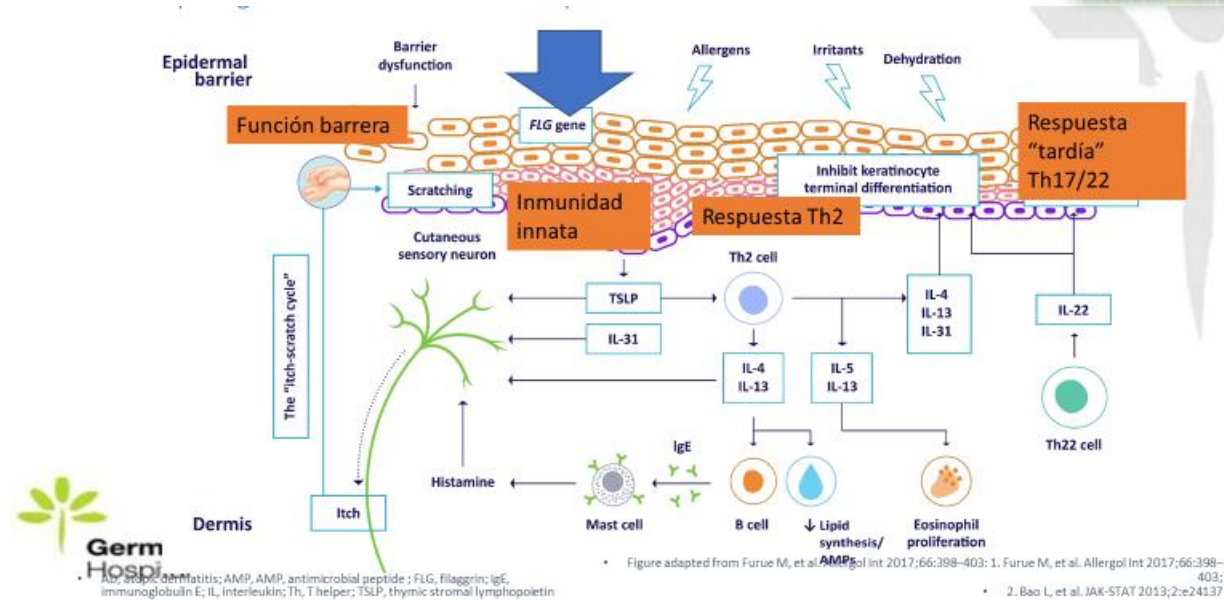
[STOCKS](#) [INSIDE THE MARKET](#) [STOCK LEADERS](#) [STOCK MOVERS](#) [STOCK SCREENER](#) [DIVIDENDS & EARNINGS CALENDAR](#) [PRESS RELEASES](#)

Nektar Therapeutics Presents Data for Rezpegaldesleukin (LY3471851) in Patients with Atopic Dermatitis and Psoriasis from Two Separate Clinical Studies at 2022 European Academy of Dermatology (EADV) Congress

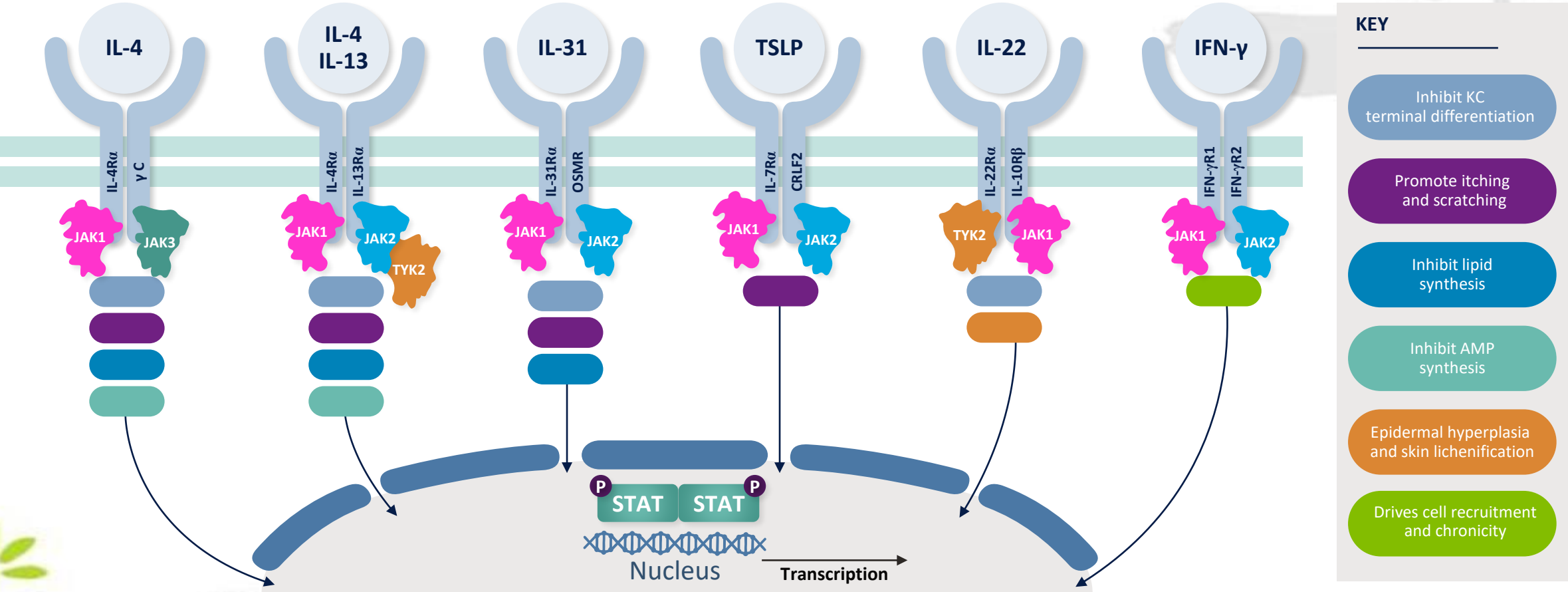
PR Newswire - Wed Sep 7, 12:15AM CDT

SAN FRANCISCO, Sept. 7, 2022 /PRNewswire/ -- Nektar Therapeutics (Nasdaq: [NKTR](#)) today announced data presentations from two Phase 1b, proof-of-concept studies of rezpegaldesleukin (also known as LY3471851 or NKTR-358) in patients with atopic dermatitis (AD) and plaque psoriasis at the 2022 European Academy of Dermatology and Venereology (EADV) Congress.

AD...too many targets?



JAK inhib: la posibilidad de inhibición simultánea de diversas dianas moleculares en DA



γ C, gamma chain; AD, atopic dermatitis; AMP, antimicrobial peptides; CRLF2, cytokine receptor-like factor 2; IFN, interferon; IL, interleukin; JAK, Janus kinase; KC, keratinocyte; OSMR, oncostatin M receptor; TSLP, thymic stromal lymphopoietin; TYK2, tyrosine kinase 2

Grewe M, et al. *Lancet* 1994;343(8888):25–6; Pastore S, et al. *J Allergy Clin Immunol* 1998;101(4):538–44; Cornelissen C, et al. *Eur J Cell Bio* 2012;91:552–66; Clark JD, et al. *J Med Chem* 2014;57:5023–38; Winthrop KL, et al. *Nat Rev Rheumatol* 2017;13:234–43; Berdyshev E, et al. *JCI Insight* 2018;3:e98006; Castro F, et al. *Front Imm* 2018;9:847; Guttman-Yassky E, et al. *Exp Dermatol* 2018;27:409–17; Keegan AD, et al. *Front Imm* 2018;9:1037; Klonowska J, et al. *Int J Mol Sci* 2018;19:3086; Virtanen A, et al. *BioDrugs* 2019;33:15–32

Ivarmacitinib (SHR0302) (ARQ 252)

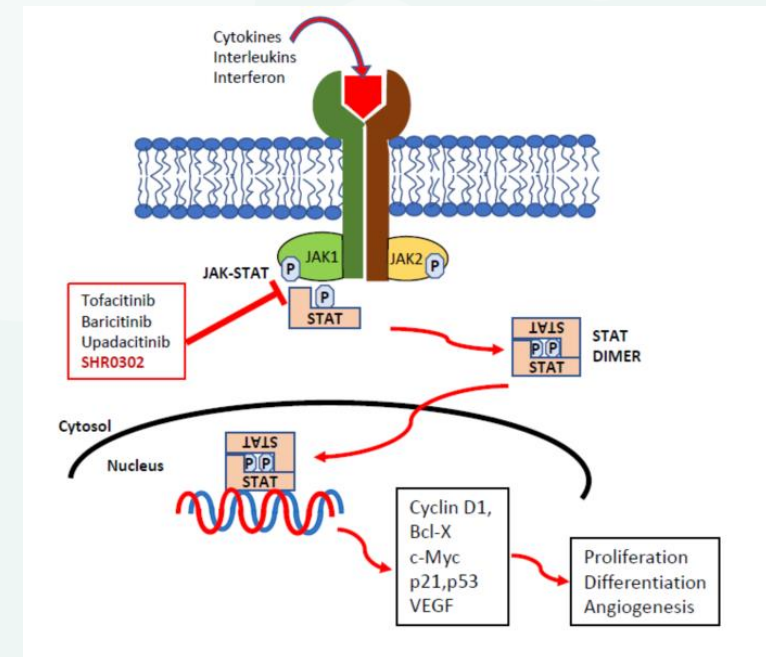
SHR0302 is a potent and orally active all members of the JAK family inhibitor, particularly JAK1. The selectivity of SHR0302 for JAK1 is >10-fold for JAK2, 77-fold for JAK3, 420-fold for Tyk2. SHR0302 inhibits JAK1-STAT3 phosphorylation and induces the apoptosis of hepatic stellate cells. SHR0302 has anti-proliferative and anti-inflammatory effects.

Phase 3 development

Administered oral

Indications seeking:

Adults With Atopic Dermatitis



Reistone Biopharma's oral Ivarmacitinib Meets Primary Endpoint in Phase III Study for Atopic Dermatitis



NEWS PROVIDED BY
[Reistone Biopharma →](#)
Nov 15, 2022, 08:00 ET

SHARE THIS ARTICLE



SHANGHAI, Nov. 15, 2022 /PRNewswire/ -- **Reistone Biopharma** (Reistone), a leading biotech company focused on development of innovative medicines for immune and inflammation diseases, today **announced positive results from a Phase III study - QUARTZ3 (NCT04875169) evaluating the efficacy and safety of once daily Ivarmacitinib as monotherapy in adults and adolescents with moderate-to-severe atopic dermatitis (AD).** Two doses (8mg QD or 4mg QD) met the co-primary endpoints, demonstrating significantly improved IGA 0/1 response rate and EASI 75 response rate versus placebo at week 16 ($P < 0.001$). Ivarmacitinib was well-tolerated at both doses without new safety findings.

Frequent adverse events observed under treatment with JAK inhibitors

Infections

- Nasopharyngitis
- Upper respiratory tract infections
- Urinary tract infections

Herpes virus reactivation

- Herpes Zoster
- Lip/oral herpes simplex infections

Gastrointestinal disorders

- Nausea
- Diarrhea

Blood/serum changes

- Elevation of liver enzymes [aspartate aminotransferase (AST). alanine aminotransferase (ALT)]
- Hyperlipidemia (increase in cholesterol, triglycerides)
- Increase in bilirubine
- Increase in creatine phosphokinase

Blood cell count alteration

- Decrease in hemoglobin level
- Decrease in white blood cell count
- Neutropenia

Rare adverse events reported under treatment with JAK inhibitors

- Thromboembolic events
- Non-melanoma skin cancers
- Solid cancers

Efectos secundarios “ de clase” de JAK- inhib

Van a variar en función de la dosis y la selectividad



Ruxolitinib (JAK 1 y 2) tópico

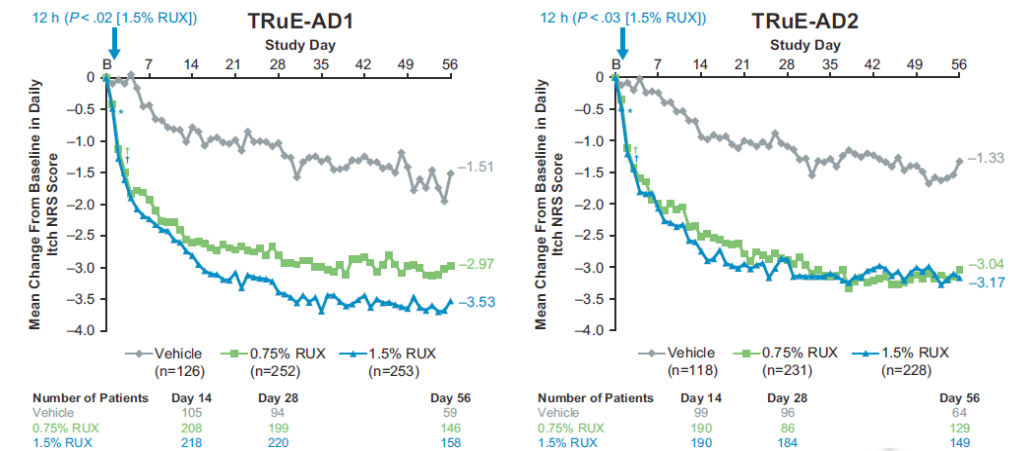
- IGA 2/3, and 3%-20% affected body surface area
- IGA 0/1 0.75% RUX cream (50.0%/39.0%) and 1.5% RUX cream (53.8%/51.3%) versus vehicle (15.1%/7.6%; $P \leq .0001$) at week 8
- Significant itch reductions versus vehicle were reported within 12 hours of first application of 1.5% RUX ($P \leq .05$).
- Application site reactions were infrequent ($\leq 1\%$) and lower with RUX versus vehicle; none were clinically significant

FDA approved !!!!



Germans Trias i Pujol
Hospital

J Am Acad Dermatol 2021;85:863-72.



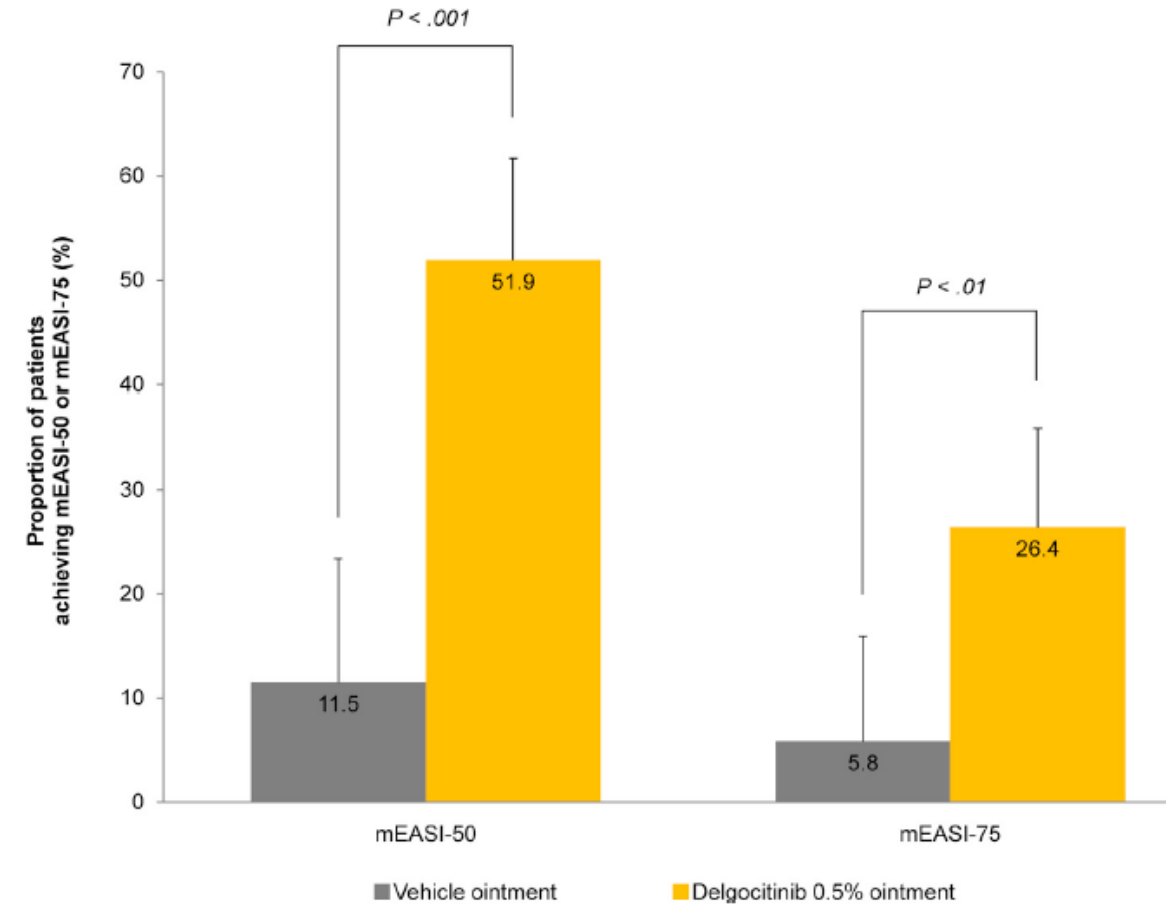
**Efficacy and safety of ruxolitinib cream
for the treatment of atopic dermatitis:
Results from 2 phase 3, randomized,
double-blind studies**



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Lawrence F. Eichenfield, MD,^e Donald Y. M. Leung, MD, PhD,^f Seth B. Forman, MD,^g May E. Venturana, MD,^h
Kang Sun, PhD,^h Michael E. Kuligowski, MD, PhD, MBA,^h and Eric L. Simpson, MD, MCRⁱ
Waterloo and Windsor, Ontario, Canada; Wrocław, Poland; New York, New York; San Diego, California;
Denver, Colorado; Tampa, Florida; Wilmington, Delaware; and Portland, Oregon

Delgocitinib en DA

- Delgocitinib 0,5% pomada vs vehículo
- mEASI>10
- Estudio randomizado, doble ciego 4 semanas
- Buena tolerancia (no prurito, irritación)



Japan approved !!!!

Delgocitinib en DA

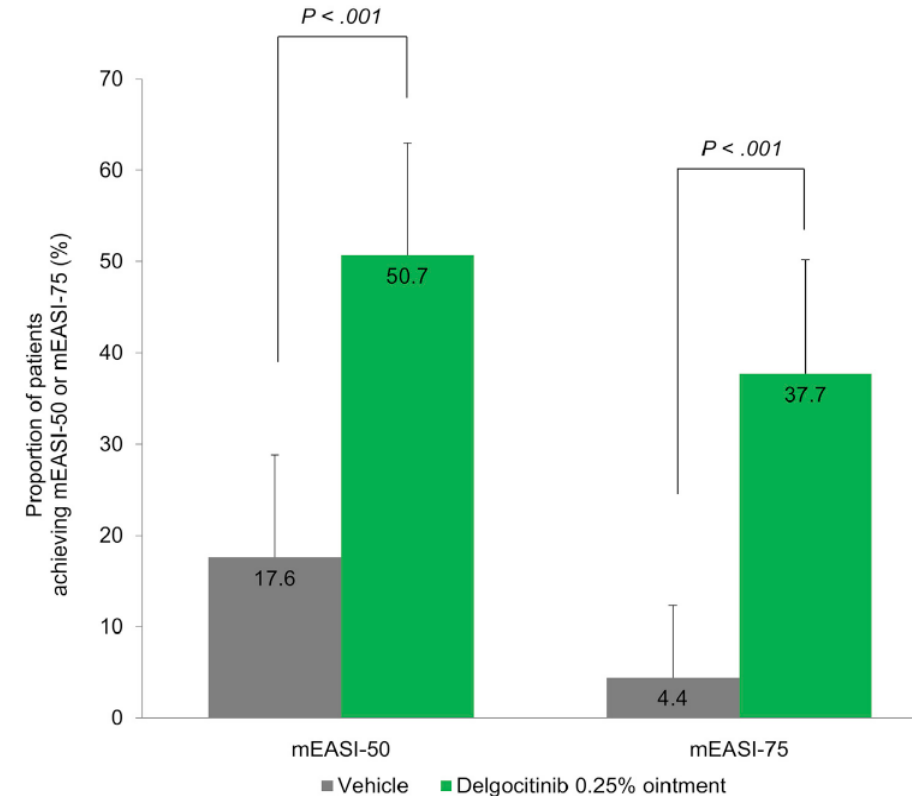
- Pacientes pediátricos 2-15 años
- mEASI >5
- Delgocitinib durante 4 semanas vs placebo
- Algún caso de foliculitis y irritación leve
- Sin niveles plasmáticos

Japan approved !!!!



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J Am Acad Dermatol 2021;85:854-62.

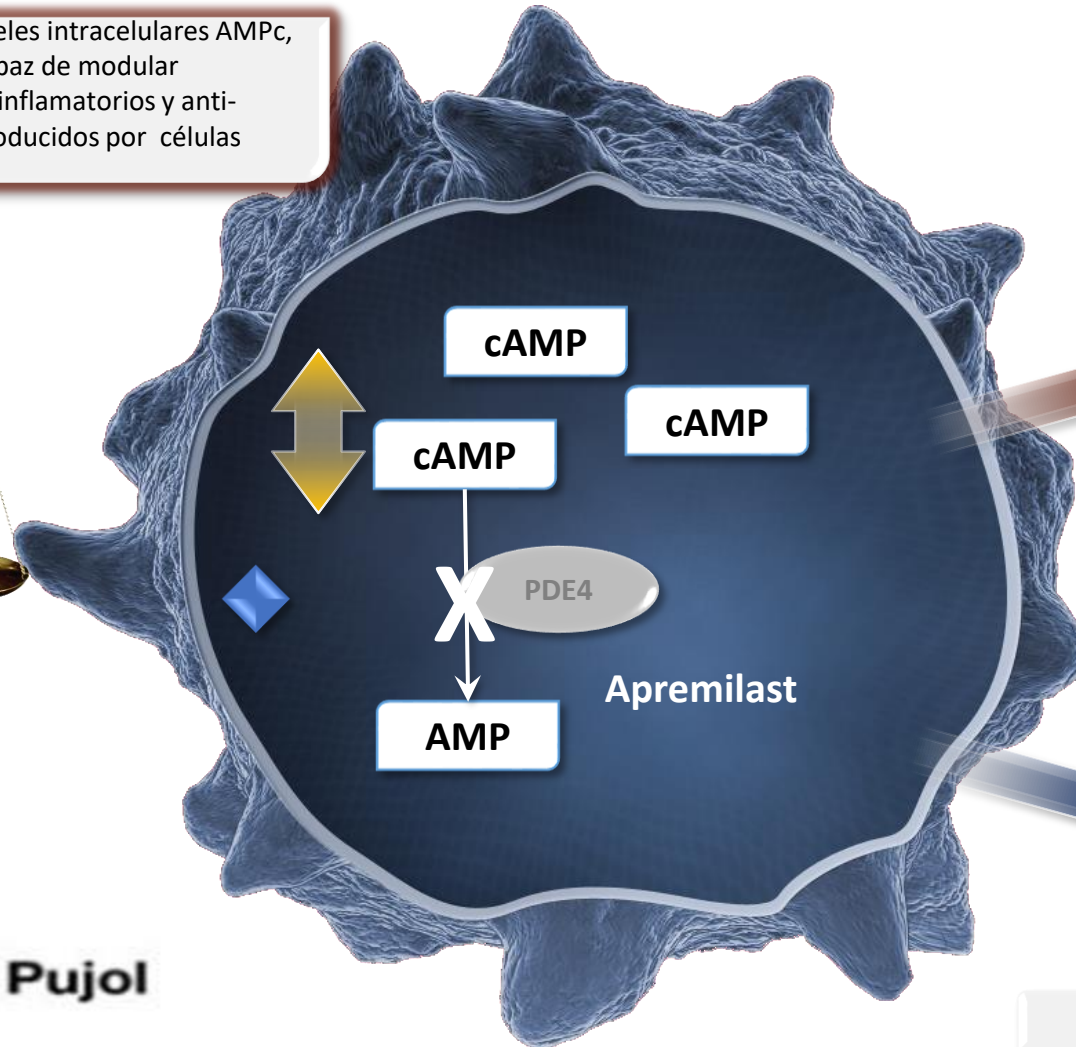


Delgocitinib ointment in pediatric patients with atopic dermatitis: A phase 3, randomized, double-blind, vehicle-controlled study and a subsequent open-label, long-term study

Hidemi Nakagawa, MD, PhD,^a Osamu Nemoto, MD, PhD,^b Atsuyuki Igarashi, MD, PhD,^c Hidehisa Sasaki, MD, PhD,^d Kenji Kabashima, MD, PhD,^e Manabu Oda, MS,^f and Takeshi Nagata, BS^g
Tokyo, Hokkaido, and Kyoto, Japan

Inhibición de la fosfodiesterasa 4

Elevando los niveles intracelulares AMPc, apremilast es capaz de modular mediadores pro inflamatorios y anti-inflamatorios producidos por células inmunitarias



Mediadores Pro-Inflamatorios
(TNF- α , IL-17, IFN- γ)

Mediadores Anti-Inflamatorios
(IL-10)

ClS Inmunitarias



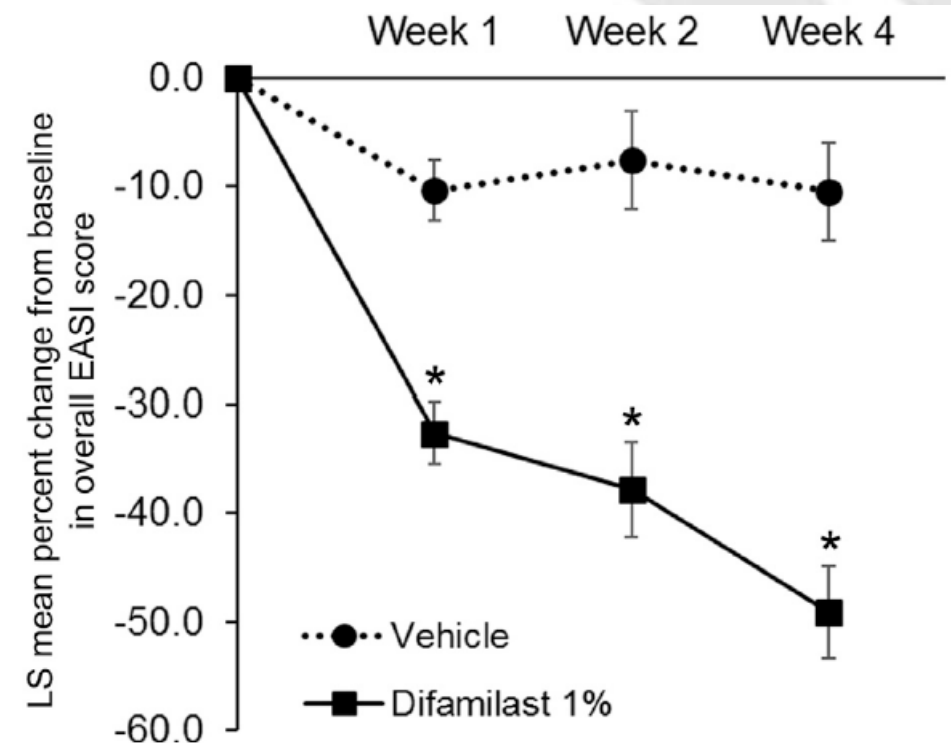
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Roflumilast en DA

- Methods: In this phase 2, proof of concept trial, patients (N=136) aged ≥ 12 years with AD were randomized to once-daily roflumilast cream 0.15%, roflumilast cream 0.05%, or vehicle cream for 4 weeks
- At week 4, mean absolute changes in EASI were -6.4 ($P=0.097$ vs vehicle), -6.0 ($P=0.356$), and -4.8 with roflumilast 0.15%, roflumilast 0.05%, and vehicle, respectively.
- Treatment-related adverse events (AEs) occurred in 2 (2.2%) patients receiving roflumilast (mild rash and moderate application site pain).

Difamilast (PDE-4 inh)

- Pacientes 15-70 años
- IGA 2-3 / BSA 5-40%
- Difamilast 1% (n:182) vs vehículo (n: 182)
- EASI-50 en EOT fue de 58,24% para 1% difamilast y 25,82% para vehículo ($P < 0,0001$); **EASI-75** fue de **42,86%** y **13,19%**, respectivamente ($P < 0,0001$); y EASI-90 fue de **24,73%** y **5,49%**, respectivamente ($P < 0,0001$)



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Japan approved !!!!

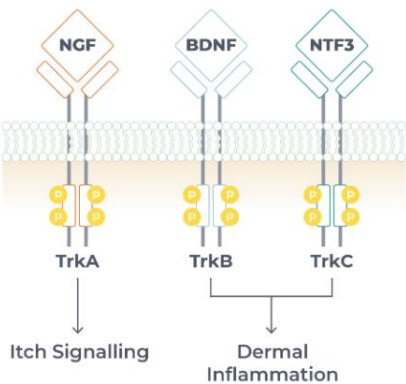
J Am Acad Dermatol 2022;86:607-14.

Difamilast ointment in adult patients
with atopic dermatitis: A phase 3
randomized, double-blind,
vehicle-controlled trial

Hidehisa Saeiki, MD, PhD,^a Kensuke Ito, MSc,^b Daisuke Yokota, MS,^b and Hidetsugu Tsubouchi, PhD^c
Tokyo and Osaka, Japan



Nuevos tratamientos tópicos



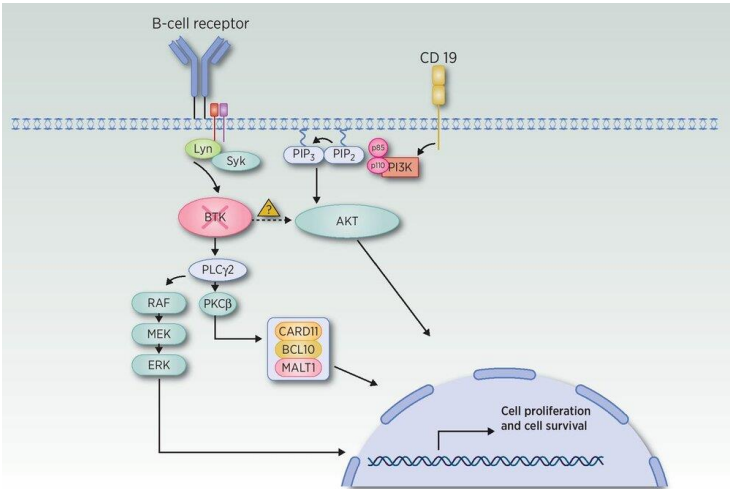
Novel targeted therapies	<i>ShA9</i>	<i>Phase I</i>
	<i>AMTX-100</i>	<i>Phase I/II</i>
	<i>BEN-2293</i>	<i>Phase I/II</i>
	<i>PRN473</i>	<i>Phase II</i>

Moderate-to-severe AD
Mild-to-moderate AD
Target: nuclear transport modifier
Mild-to-moderate AD
Target: pan-TRK antagonist
Mild-to-moderate AD
Target: BTK inhibitor

What’s New in Topicals for Atopic Dermatitis?

Elana Kleinman^{1,2,3} · Jennifer Laborada^{1,2,4} · Lauren Metterle^{1,2} · Lawrence F. Eichenfield^{1,2}

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A FILM FROM DANIELS

EVERYTHING EVERYWHERE ALL AT ONCE

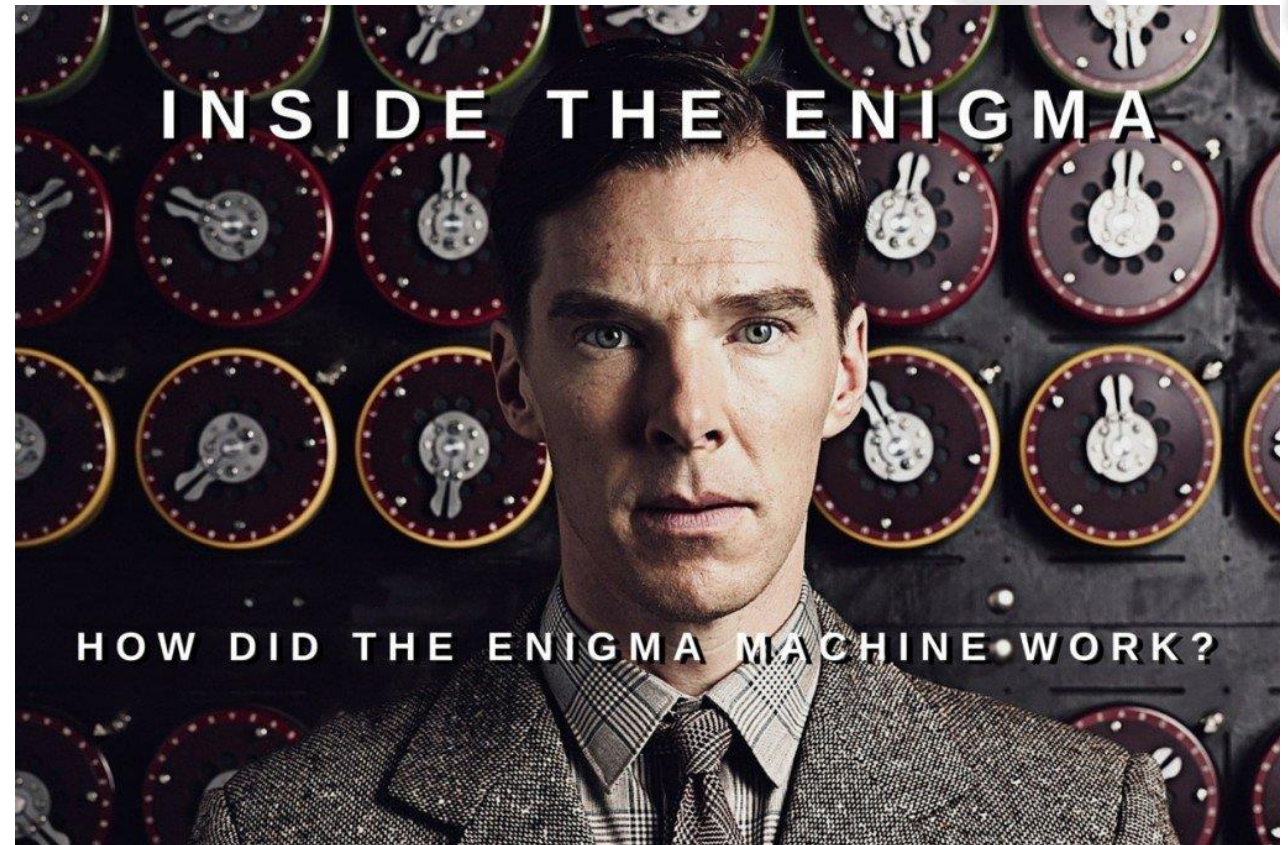
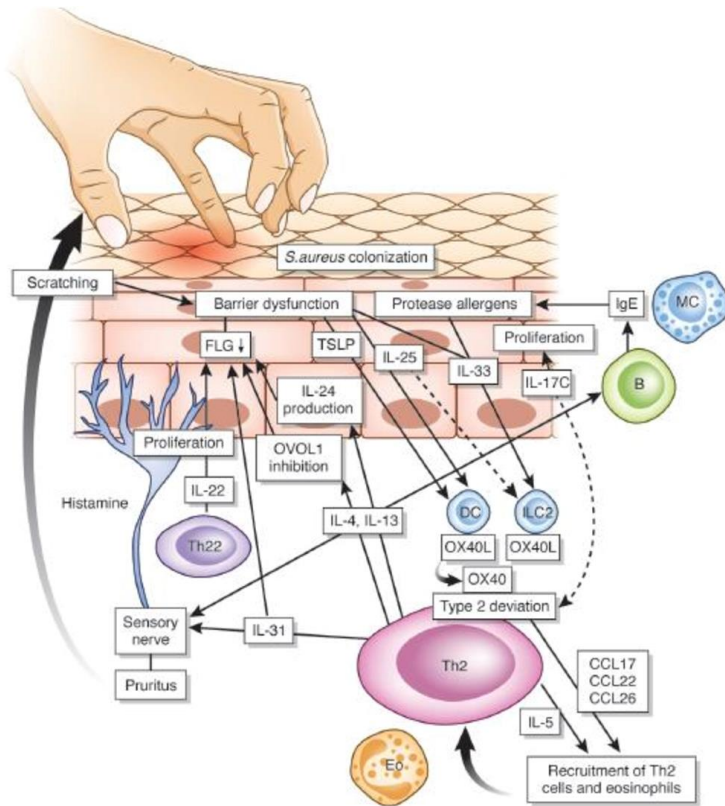
PÅ KINO 20. MAI

ANIMATED BY JEFFREY L. TRAVIS. MUSIC BY JEFFREY L. TRAVIS. COSTUME DESIGNER: JEFFREY L. TRAVIS. EDITOR: JEFFREY L. TRAVIS. PRODUCTION DESIGNER: JEFFREY L. TRAVIS. EXECUTIVE PRODUCERS: JEFFREY L. TRAVIS, JEFFREY L. TRAVIS, JEFFREY L. TRAVIS. PRODUCED BY JEFFREY L. TRAVIS. WRITTEN BY JEFFREY L. TRAVIS. DIRECTED BY JEFFREY L. TRAVIS. CASTING BY JEFFREY L. TRAVIS. COUNTRY OF ORIGIN: USA. LANGUAGE: ENGLISH. SUBTITLE: DANISH. AGE: 12+. A24





Ya queda menos para saber cómo funciona (y cómo controlar) la DA



•DOI:10.22034/IJI.2019.80253

•Corpus ID: 184487929

Pathogenesis of Atopic Dermatitis: Current Paradigm.

•M. Furue, D. Ulzii, +3 authors T. Nakahara

•Published 1 June 2019

•Biology, Medicine

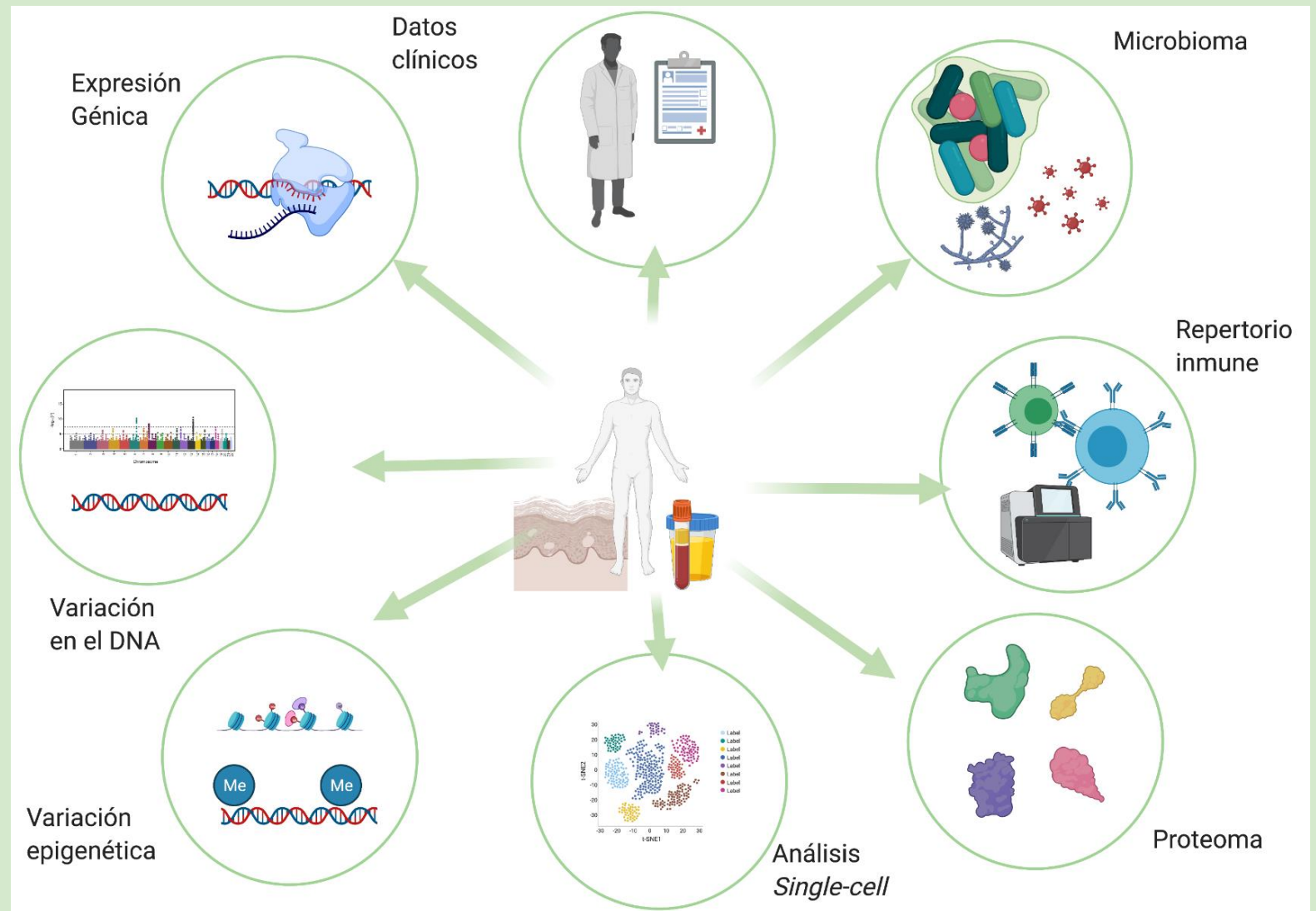
•Iranian journal of immunology : IJ

Proyecto SSAD: Medicina Personalizada en AD

Sólo desde la comprensión de las bases moleculares y celulares de heterogeneidad de la **dermatitis atópica** seremos capaces de identificar tratamientos efectivos para cada tipo de paciente

El uso combinado de **múltiples tecnologías** sobre una cohorte única marcará la diferencia

Pujol



2022

Gracias por vuestra atención



49 CONGRESO
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VENEREOLOGÍA
MÁLAGA
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