Supplementary information

Trends in the drug target landscape for autoimmune diseases

In the format provided by the authors and unedited

Database construction

We built a comprehensive database with immunology agents marketed or in clinical development. We identified 544 drugs as of December 2020 and 807 drugs as of December 2024. Our work was based on Evaluate Pharma data that we reworked to make it ready for our analysis (see below).

Scoping disease areas. We defined major autoimmune diseases (see the list in Supplementary Table 1) across key therapeutic areas: dermatology, rheumatology, gastro-intestinal, respiratory, systemic diseases, neurology and sensory organs. Autoimmune diseases included all diseases involving immune mis-regulation leading to chronic inflammation and tissue damage, either affecting a specific organ (such as the lung or skin) or multiple organs (systemic diseases). Our approach has two limitations:

- **Definition of autoimmune diseases.** Diseases such as type 1 diabetes or graft-versus-host disease might also be considered autoimmune diseases but are not included in our analysis. Immunology agents used in other therapeutic areas such as immuno-oncology were also not considered.
- Classification of diseases per therapeutic area. Most diseases in immunology have systemic effects that span across multiple organs (for example, sensory organ symptoms in inflammatory bowel diseases). All diseases with inconsistent expression and generally considered systemic (for example, lupus, Sjögren syndrome) were classified in a separate category to avoid bias in our analysis of the industry pipelines (that is, how industry defines therapeutic areas)

Scoping therapeutic targets. Relevant targets in the immunology cascade focused on immune mediation through targeting cytokines (essentially cytokines in the tumour necrosis factor (TNF) family and interleukins) or non-receptor tyrosine kinases such as JAKs (see list of targets in Supplementary Table 2).

- Target selection was based on triangulation between all diseases in scope in the Evaluate database (see scoping disease areas) and immunology target families (TNF, IL, non-receptor tyrosine kinases).
 For targets identified, we identified all alternative names and cross-checked our selection was exhaustive (for example, OX-40 is also known as CD134 or TNFRSF4, and JAK is also written Janus kinase)
- Selected targets were added when they raise high expectations in immunology and when they are
 close to the immunology pathways prioritized in this study: S1P was classified as "other", and some
 cytokine receptors of interest were included (FLT3, ST2)
- Combinations of targets (such as IL-17 and TNF α) were captured to avoid double counting (see column co-targeting below).

We categorized the target in target families according to the literature (for example, the IL-1 family includes IL-1, IL-18, IL-33 and IL-36, or TNF superfamilies such as TNFSF13 that includes BlyS and BAFF). Limitations include:

- The potential underestimation of the investment in some targets in immunology when they are often combined to others (for example, the number of products targeting IL-23 include IL-12/-23, IL-23 and IgG Fc, IL-23 and TNF). However, according to our analysis, the impact on the outcomes should be limited considering the low number of clinical development programs in this area.
- Classification bias when information is incomplete in some clinical development programs, especially
 regarding the drug design (for example, targeting of interleukins versus targeting the interleukin
 receptor). The database has been cross-checked with literature review and screening of company
 websites to limit this bias.

Supplementary Table 1 | List of therapeutic targets included in the analysis

Target family Level 1	Target family Level 2	Target family Level 3	Target family Level 4	Co-targeting	
Cytokine	Interleukins	IL-1 family	IL-1	Single family	
Cytokine	Interleukins	IL-1 family	IL-1/ IRAK 4	Intrafamily	
Cytokine	Interleukins	IL-1 family	IL-1 & Caspase	Intraramily	
Cytokine	Interleukins	IL-1 family	IL-18	Single family	
Cytokine	Interleukins	IL-1 family	IL-33	Single family	
Cytokine	Interleukins	IL-1 family	IL-36	Single family	
Cytokine	Interleukins	IL-10 family	IL-10	Single family	
Cytokine	Interleukins	IL-10 family	IL-10 & F8	Interfamily	
Cytokine	Interleukins	IL-10 family	IL-10 & TNF	Interfamily	
Cytokine	Interleukins	IL-10 family	IL-22	Single family	
Cytokine	Interleukins	IL-12 family	IL-12	Single family	
Cytokine	Interleukins	IL-12 family	IL-12 & IL-23	Intrafamily	
Cytokine	Interleukins	IL-12 family	IL-23	Single family	
Cytokine	Interleukins	IL-12 family	IL-23 & IgG Fc	Interfamily	
Cytokine	Interleukins	IL-12 family	IL-23 & TNF	Interfamily	
Cytokine	Interleukins	IL-17 family	IL-17	Single family	
Cytokine	Interleukins	IL-17 family	IL-17 & F	Interfamily	
Cytokine	Interleukins	IL-17 family	IL-17 & TNF	Interfamily	
Cytokine	Interleukins	IL-17 family	IL-17, IL-22, IL-26, IL-36 & Keratin 16	Interfamily	
Cytokine	Interleukins	IL-17 family	IL-17 & K-17 & DHODH	Interfamily	
Cytokine	Interleukins	IL-17 family	IL-25	Single family	
Cytokine	Interleukins	IL-2 family	IL-2	Single family	
Cytokine	Interleukins	IL-2 family	IL-2 / ITK	Interfamily	
Cytokine	Interleukins	IL-2 family	IL-2 & IgG Fc	Interfamily	
Cytokine	Interleukins	IL-2 family	IL-2, IL-9, IL-15	Intrafamily	
Cytokine	Interleukins	IL-2 family	IL-4	Single family	
Cytokine	Interleukins	IL-2 family	IL-4 & IL-13	Intrafamily	
Cytokine	Interleukins	IL-2 family	IL-7	Single family	
Cytokine	Interleukins	IL-2 family	IL-7 & TNF	Interfamily	
Cytokine	Interleukins	IL-2 family	IL-9	Single family	
Cytokine	Interleukins	IL-2 family	IL-13	Single family	
Cytokine	Interleukins	IL-2 family	IL-15	Single family	
Cytokine	Interleukins	IL-2 family	IL-21	Single family	
Cytokine	Interleukins	IL-3 family	IL-5	Single family	
Cytokine	Interleukins	IL-6 family	IL-6	Single family	
Cytokine	Interleukins	IL-6 family	IL-11	Single family	
Cytokine	Interleukins	IL-6 family	IL-31	Single family	
Cytokine	Interleukins	IL-2 family	IL-15 & IL-21	Intrafamily	
Cytokine	Interleukins	IL-10 family	IL-20	Single family	
Cytokine	Interleukins	IL-12 family	IL-12 & TNF	Interfamily	
Cytokine	Interleukins	IL-3 family	IL-3 & IL-5	Intrafamily	
Cytokine	Thymic Stromal Lymphopoietin	TSLP	TSLP	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF2	TNF	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF2	TNF & Other	Interfamily	
Cytokine	Tumor Necrosis Factor	TNFSF2	TNF & Other	Interfamily	
Cytokine	Tumor Necrosis Factor	TNFSF2	TNF & OX40	Intrafamily	
Cytokine	Tumor Necrosis Factor	TNFSF4	OX40	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF2	TNF	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF4	OX40L	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF5	CD40L	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF6	Fas Ligand	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF11	RANK Ligand	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF12	TWEAK	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF13	BLyS	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF13	APRIL	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF13	BAFF	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF14	LIGHT	Single family	
Cytokine	Tumor Necrosis Factor	TNFSF15	TL1A	Single family	
Cytokine receptor	Interleukin receptor	IL 1 receptor-like 1	ST2	Single family	
Cytokine receptor	Tyrosine kinase receptor	Tyrosine kinase 3	FLT3	Single family	
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK1	Single family	
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK2	Single family	
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK3	Single family	
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1, 2	Single family	

Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1, 3	Single family
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1, 2, 3	Single family
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK unspecified	Single family
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	TYK 2	Single family
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1 & TYK 2	Intrafamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1, 2, 3 & TYK 2	Intrafamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK & BTK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK & ITK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 2 & FLT 3	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 3 & TEC	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 1 & BTK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK & S1P	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK & ROCK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 3 & SYK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Janus Kinase	JAK 3 & TRK	Interfamily
Kinase cascade	Non-receptor tyrosine kinase	Other	TPL2	Single family
Kinase cascade	Non-receptor tyrosine kinase	TEC	ITK	Single family
Kinase cascade	Non-receptor tyrosine kinase	TEC	ВТК	Single family
Kinase cascade	Non-receptor tyrosine kinase	SYK	SYK 2	Single family
Kinase cascade	Non-receptor tyrosine kinase	SYK	SYK	Single family
Kinase cascade	Non-receptor tyrosine kinase	SYK	SYK & JAK	Interfamily
Kinase cascade	Receptor-interacting protein kinases	RIP kinases	RIPK1	Single family
Kinase cascade	Receptor-interacting protein kinases	RIP kinases	RIPK2	Single family
Kinase cascade	Receptor-interacting protein kinases	RIP kinases	RIPK3	Single family
Kinase cascade	Receptor-interacting protein kinases	1	RIPK4	Single family
Kinase cascade	Receptor-interacting protein kinases	RIP kinases	RIPK5	Single family
Kinase cascade	Receptor-interacting protein kinases	RIP kinases	RIPK unspecified	Single family
Other	Other	Other	S1P	Single family

Scoping immunology agents. We filtered immunology agents:

- Addressing the therapeutic targets previous defined (see above)
- In disease areas previously defined
- In phase II, phase III, filed (that is, dossier submission to regulatory agencies FDA and EMA), approved and marketed drugs. Abandoned and suspended clinical trials, as well as early-stage trials (that is, phase I), were excluded from the analysis as those innovations are considered uncertain.

Our database was structured around 1 line per combination of product and indication, and per year (lines were duplicated for 2020 and 2024). For instance, a drug marketed for multiple indications would have as many lines as indications (either marketed or investigated in clinical development). Conversely, drugs addressing multiple subtypes of the same disease (for example, juvenile idiopathic arthritis versus adult-onset Still's disease), different sub-population of a disease (for example, asthma in adult versus paediatric patients was counted once) or those with different administration modes within the same indication (for example, subcutaneous versus intravenous) were counted only once.

We identified biosimilars that were under investigation (non-inferiority phase III trials) and being filed so that the analyses focus on new molecular entities.

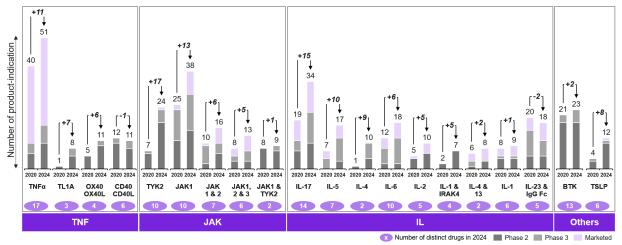
Our approach focused on a selection of major therapeutic areas and diseases within immunology and consequently, our analysis did not encompass all indications of immunology drugs. For instance, in the case of an immunology drug addressing other therapeutic areas such as infections or cancers, those indications were not presented.

We confirmed both the list of immunology targets and agents in scope by referencing expert calls and scientific literature review.

Analysis

To analyze the evolution of the competitive landscape from 2020 to 2024, we used two approaches. First, we analyzed the trends by therapeutic targets and extracted the top 20 to understand which were the leading targets and target families in immunology in 2024, their development maturity stage, and how this compared to 2020 (Fig. 1). In this analysis, we excluded biosimilars and generics to focus only on new treatments, thus avoiding overrepresentation of targets with many biosimilars (for example, TNF). We also excluded the drugs indicated for diseases mapped as "other", to ensure comparability of 2020 and 2024 data as those were not gathered in the 2020 data set. To enhance clarity, we categorized drugs in the "Pre-filing" and "Filed" stages as "phase III", given the uncertainty surrounding the filing outcomes. Similarly, "Approved" drugs were considered "Marketed" based on the assumption that approval will lead to their commercial launch. See Supplementary Table 3 for indications investigated in phase III in 2024.

Then, focusing on the drug candidate pipeline, we reviewed by therapeutic area and disease the evolution of treatment options from 2020 to 2024. We assessed the variety of target families and their relative weight in the pipeline based on the number of drugs targeting them (Fig. 2). In this analysis, we excluded biosimilars and generics for the same reasons stated for Fig. 1 above and we focused on pipeline products (that is, phase II, phase III, "Pre-filing", and "Filed").

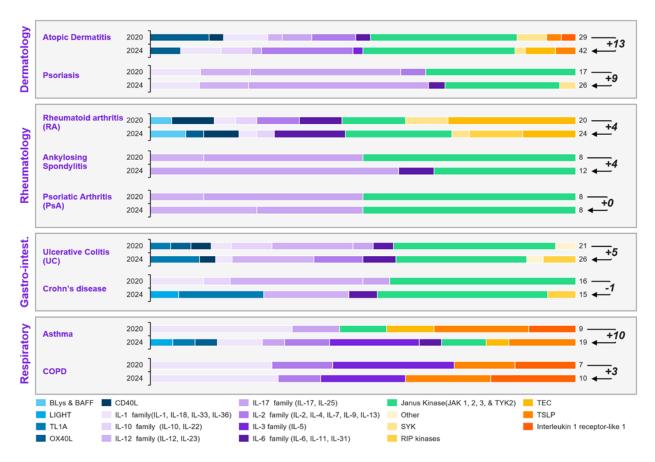


Supplementary Figure 1 | Industry pipeline and in-line portfolio in immunology, by therapeutic target and development stage. The top 20 targets in 2024 and the evolution of the number of drugs studied or marketed in 2020-2024 are shown. To reflect multi-indication drugs, a drug was counted multiple times within one target if it addressed more than one disease. Innovation covers the advanced clinical development pipeline (phase II, phase IIII and regulatory filings not yet approved) and marketed drugs, while excluding biosimilars and generics. Source: Evaluate Pharma.

Additional analyses

Evolution in the number of drugs by disease. For each key autoimmune disease, we analyzed the total number of drugs and the number of biosimilars and generics that were in the pipeline or marketed in 2020 and 2024. Datapoints of drugs indicated for the diseases mapped as "other" were not collected in the 2020 data set.

Overall, there was a strong pipeline increase across all therapeutic areas with 263 new drugs in the pipeline or marketed in 2024, accounting for approximately 50% growth compared with 2020. The majority (65%) of this pipeline increase was driven by non-biosimilar and non-generic immunology drugs, growing from 315 in 2020 to 487 in 2024 (Supplementary Table 1).

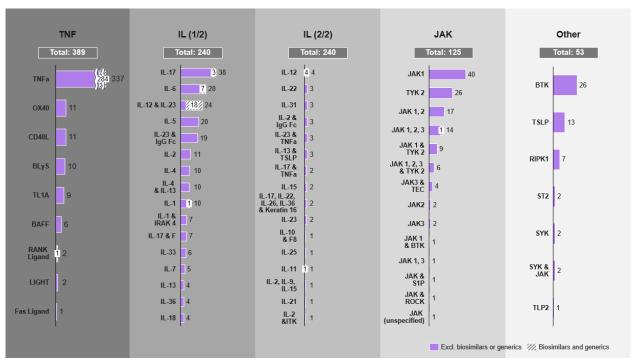


Supplementary Figure 2 | Evolution of pipeline target landscape (phases II and III) for key autoimmune diseases by therapeutic area. Assessment of evolution through relative number of distinct target families, drug numbers, and family weight by drug number. BAFF = B-cell activating factor; BlyS = B lymphocyte stimulator; CD40L = CD40 ligand; IL = interleukin; OX40L = OX40 ligand; RIP = Receptor-interactive protein; SYK = spleen tyrosine kinase; TEC = tyrosine-protein kinase; TL1A = tumor necrosis factor-like ligand 1A; TSLP = thymic stromal lymphopoietin; TYK2 = tyrosine kinase 2. Refer to the supplementary information for more details.

TA	Disease	Product Number		TA		Disease	Product nur		per	
		2020	2024	Var '20-'24				2020	2024	Var '20-'24
	Psoriasis	67	94	27		Gastro-	Ulcer Colitis	-// , 51	-///, 68	17
	Atopic dermatitis	32	53	21	کلے		Crohn's disease	4 3	1 ///, 57	14
	•				"	intestinal	Other Celiac Disease	n.s.	12	n.a.
	Hidradenitis Suppurativa	21	32	11			Asthma	1 13	25	12
	Alopecia/Male pattern baldness	9	16	7	燃	Respiratory	COPD3	7	12	5
Dermatology	Urticaria	3	8	5	90	поортаст	Other	n.a.	8	n.a.
	Vitiligo	7	8	1			Systemic Lupus erythem.1	25	30	5
	ŭ	•	-			Systemic	Vasculitis	4	I 13	9
	Other	n.a.	7	n.a.	×		Behçet's syndrome	: 8	£ 12	4
	Scleroderma	8	5	-3			Sjögren's syndrome	10	1 1	1
	Pemphigus vulgaris	3	2	-1			Polymyalgia rheumatica	3	14	1
							Sarcoidosis	2	[3	1
	Rheumatoid Arthritis	91	///// 109	18			Polymyositis & dermato. ²	2	2	0
	Ankylosing Spondylitis	/// 50	7//,70	20			Other	n.a.	1	n.a.
MZ					<u>@</u>	Neurology	Multiple sclerosis	5	8	3
	Psoriatic Arthritis	1 //, 50	1 ///, 61	11			Other	n.a.	1	n.a.
	Arthritis	13	40	27		Sensory organs	Uveitis	12	1 / ₂ 20	8
	Other	n.a.	6	n.a.			Nasal polyp	4	7	3
					Tota	al		315 229 544	487 320 807	263

Supplementary Table 2 | Overview of number of drugs by therapeutic area and key autoimmune disease For each target family and therapeutic target, we analyzed the total number of pipeline and marketed drugs and the number of biosimilars and generics in 2024.

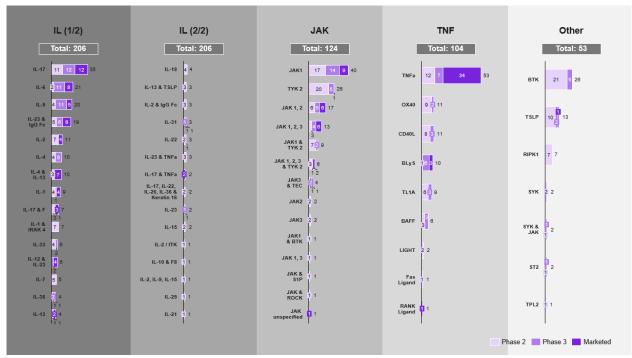
The review of the drug number by therapeutic target and target family showed the highest immunology marketed and pipeline drug number within the TNF family, mostly due to biosimilars & generics accounting for 87% of drugs targeting TNF. Looking at other target families, while among the IL family some specific targets count many biosimilars and generics (for example, IL-12 and IL-23 combination, where biosimilars and generics account for 75% of drugs), the JAK family and other targets count very few biosimilars and generics (Supplementary Figure 3).



Supplementary Figure 3 | Target innovation trend by target family and mix of biosimilars/generics

Trends in development stage by target family. For each target family and therapeutic target, we analyzed the number of drug candidates in 2024 by development stage. To enhance clarity, we categorized drugs in the "Pre-filing" and "Filed" stages as "phase III", given the uncertainty surrounding the filing outcomes. Similarly, "Approved" drugs were considered "Marketed" based on the assumption that approval will inevitably lead to their launch. Compared to the analysis conducted and displayed in Fig. 1, we captured here all the therapeutic targets and included the drugs indicated for "other" diseases.

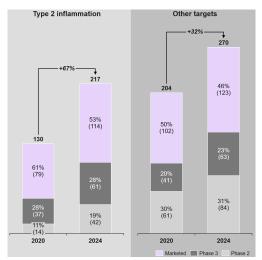
The review of drugs by therapeutic target and development stage showed different levels of maturity across target families and targets. For instance, many IL targets have at least one marketed drug already and combinations of IL targets with other target families are in development (for example, IL-1 and IRAK4, IL-13 and TSLP, JAK1 and BTK)



Supplementary Figure 4 | Target innovation trend by target family and development stage in 2024

Trends across type 2 inflammation. We analyzed immune mediators involved in type 2 inflammation, including IL-5, effector cytokines (IL-4, IL-13), alarmin cytokines (TSLP, IL-25, IL-33), IgE, and additional targets such as IL-31, Bruton's tyrosine kinase (BTK) and JAKs. The analysis, which excludes biosimilars and generics, compared pipeline evolution between 2020 and 2024 across development stages (phase II, phase III, marketed).

The findings highlight a significant acceleration in the type 2 inflammation pipeline compared to non-type 2 inflammation targets. Marketed indications increased from 79 to 114 (+44%) since 2020, outpacing the 21% growth observed in non-type-2 targets. The phase II pipeline expanded even more rapidly, with a 200% growth compared to 38% for non-type-2 targets. Overall, the number of indications investigated or marketed for type 2 inflammation targets grew by 67%, nearly doubling the 32% growth seen in other targets.



Supplementary Figure 5 | Target innovation trend in type 2 inflammation versus other targets

Supplementary Table 3 | Indications investigated in phase III in 2024 (marketed products and NMEs)

3580610	Product	Manufacturer	Therapeutic target	n 2024 (marketed products and NMEs) Indications in phase 3
ASCONDEDITION Action Act				
Amitschimb				
Asseptimen		·		
Astegopilmab Genentech/Roche STZ COPD Astockery March KSAS, EMD Servon BLyS Systemic lupus erythematosus (CM310 Keymed Biosciences II.4 Alopic Dermatitis, Asthma, Nacial Polyps (Cosentry Novartis II.17 Vascultis: Polymyalga familiaris (Polymyalga famil				•
Marcik Koak, EMD Serono				
CM310 Keymed Blosciences				
Cosentyx Novartis IL-17 Vasculitis, Folymayleja rheumatica Daporlollamab Gogan, UCB CD401 Systemic Lujus erythematosus Daporlollamab GSK IL-5 Astranza (Lujus erythematosus) Bebarrokimab Astranza (Lujus erythematosus) Paporlasis Fasenra Astranza (Jujus erythematosus) Paporlasis Frenebrutinib Roche BTK Multiple selerosis Frenebrutinib Roche BTK Multiple selerosis Frenebrutinib Roche BTK Multiple selerosis GR1501 Genrik Bio IL-17 Ashaylosing Spondyrits GR1502 Genrik Bio IL-14 Atopic Dermatitis Guarditinib Nana BioSciences SYK & JAK Alopic Dermatitis Baris Novartis, Regeneron Pharmaceutical IL-1 COPD Livay Aliance Signerio Syndrome; Systemic Lupus erythematosus Ilaris Novartis, Regeneron Pharmaceutical IL-12 COPD Ilumy Merk & Co IL-23 Signerio Syndrome; Systemic Lupus erythematosus				, , ,
Dapring Biogen, UCB		,		
Dazodaliber AstraZeneca, Amgen				
Dependinaby GSK	Dazodalibep		CD40L	
Ebdarokimab Akeso Biopharma IL-12 & IL-23 Psoriasis Fasenra AstraZeneca IL-5 COPP), Risal Polyp, Vasculatis Fenebrutinib Roche BTK Multiple sclerosis Frexilimab Sanofi CMQL Multiple sclerosis GRISO2 Genrix Bio IL-17 Ankylosing Spondylitis GRISO2 Genrix Bio IL-18 Griso2 Genrix Bio IL-18 Griso2 Griso2 Genrix Bio IL-18 Griso2 G			IL-5	
Fasenra AstraZeneca IL-5 COPD, Nasal Polyp; Vasculatis Fenebrutinib Roche BTK Multiple sclerosis GRISO1 Roche BTK Multiple sclerosis GRISO1 Gent's Bio IL-17 Antivities (Serosis GRISO1) Gent's Bio IL-17 Antivities (Serosis GRISO1) Gent's Bio IL-17 Antivities (Serosis GRISO1) Gent's Bio IL-18 Asana BioSciences SAFE Signer's syndrome; Systemic lupus erythematosus Il-18 Asana BioSciences IL-18 Asana BioColibe Pharmaceuticals IL-18 Asana BioScience IL-18 Asana BioColibe Pharmaceuticals IL-18 Asana BioColibe Phar	Ebdarokimab	Akeso Biopharma	IL-12 & IL-23	
Freezalimab Gentris Bio Gusactirub Asana BioSciences SYR & JAK Atopic Dermatthis Novartis BAFF Siogern's syndrome; Systemic lupus erythematosus llaris Illimya Merck & Co Ill-23 & Ilgo Fe Psoriatis Arthritis Illimya Merck & Co Ill-23 & Ilgo Fe Psoriatis Arthritis Illimya Merck & Co Ill-23 & Ilgo Fe Psoriatis Arthritis Illimya Movartis AnaptysBio Ill-36 Psoriatis Arthritis Ill-37 Psoriatis Psoriatis Arthritis, Hidradenitis Suppurativa Ill-36 Psoriasis Ill-37 Psoriasis Psoriatis Arthritis, Hidradenitis Suppurativa Ill-31 Johnson & Johnson JAK 1, 2, 3 Atopic Dermattitis, Alopecia/Male pattern baldness; Ankylosing Spondylitis Jaktinib Surhou Zelgen Biopharmaceuticals Ill-31 Johnson & Johnson Ill-23 Psoriasis JAK 1, 2, 3 Atopic Dermattitis, Alopecia/Male pattern baldness; Ankylosing Spondylitis Psoriasis Jaktinib Surhou Zelgen Biopharmaceuticals Ill-10 Johnson & Johnson Ill-23 Psoriasis Jaktinib Johnson & Johnson Ill-23 Psoriasis Johnson & Johnson Ill-23 Psoriasis Ill-10 Johnson & Johnson Ill-23 Johnson & Johnson Ill-23 Johnson & Johnson Ill-23 Johnson & Johnson Ill-23 Johnson & Johnson Ill-24 Johnson & Johnson Ill-25 Johnson & Johnson Ill-26 Johnson & Johnson Ill-27 Johnson & Johnson Ill-27 Johnson & Johnson Johnson & Johnson Ill-28 Johnson & Johnson Ill-29 Johnson & Johnson Ill-29 Johnson & Johnson Ill-20 Johnson & Johnson Johnson & Johnson Johns	Fasenra	AstraZeneca	IL-5	COPD; Nasal Polyp; Vasculatis
GRISD1 Genrix Bio IL-17 Anévoloris Spondylitis Gradullib Asana BioSciences SYK & JAX Atopic Dermatitis Gusactinib Asana BioSciences SYK & JAX Atopic Dermatitis Inandumab Novartis, Regeneron Pharmaceuticals IL-1 (OPD Illiumya Merck & Co IL-23 & Igo Fc Poriatic Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatic Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatic Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatic Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatic Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatis Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatis Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatis Arthritis Illiumya Merck & Co IL-23 & Igo Fc Poriatis Poriatis Alphana (IL-23 Poriatis Poriatis) Illiumya Merck & Co IL-24 Poriatis Poriati	Fenebrutinib	Roche	BTK	Multiple sclerosis
Genis02 Genrix Bio Gusactinib Asana BloSciences SYK & JAK Atopic Dermattis Janalumab Novartis Asana BloSciences SYK & JAK Atopic Dermattis Jogere's syndrome; Systemic lupus erythematosus Jaris Joyardis Morck & Co IL-23 & IgG Fe Psoriatic Arthritis Joyardis John Morck & Co IL-23 & IgG Fe Psoriatic Arthritis Joyardis John Novartis John No	Frexalimab	Sanofi	CD40L	Multiple sclerosis
Gusacitinib	GR1501	Genrix Bio	IL-17	Ankylosing Spondylitis
Janahumab Novartis Regeneron Pharmaceuticals IL-1 COPD	GR1802	Genrix Bio	IL-4	Atopic Dermatitis
Ilaris Novartis, Regeneron Pharmaceuticals II1 COPD	Gusacitinib	Asana BioSciences	SYK & JAK	Atopic Dermatitis
Ilumya Merck & Co Il.23 & Ig G FC Popriatic Arthritis Illimisted limits Psoriatis Psoria	Ianalumab	Novartis	BAFF	Sjögren's syndrome; Systemic lupus erythematosus
Insidolimab AnaptyBilo Intepekimab Sanofi, Regeneron Pharmaceuticals It-33 Itoskibep Affibody AB, Inmagene Biopharmaceuticals IL-17 Psoriasis, Psoriatic Arthritis; Hidradenitis Suppurativa Jakafi Novartis Jakafi Corphr's Disease Jakafi Corphr's Disease Jakafi Corphr's Disease Jakafi Corphr's Disease Jakafi Novartis J	Ilaris	Novartis, Regeneron Pharmaceuticals	IL-1	COPD
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Jyseleca Galapagos NV & Gilead Sciences JAK1 Crohn's Disease Levilimab Biocad Ll-6 Rheumatoid Arthritis				Spondylitis
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