

Horizon BioInsights

June 2024

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GLP-1 Comparison Table

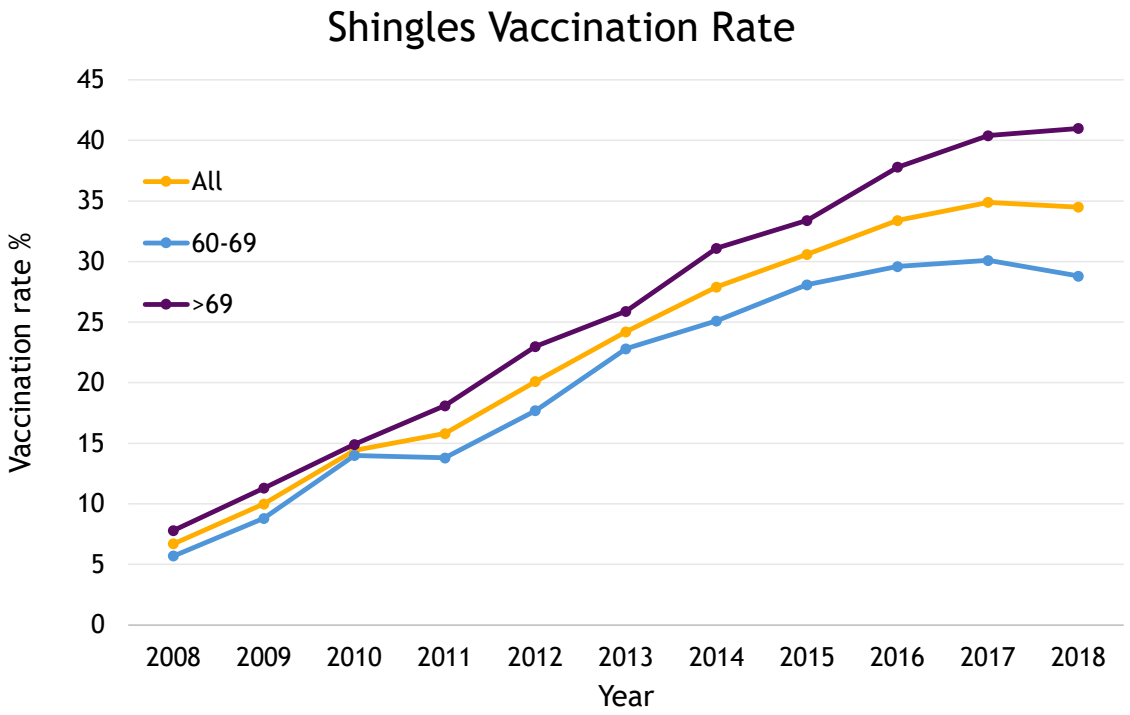
	Ozempic semaglutide injection	ONCE-WEEKLY wegovy™ semaglutide injection 2.4 mg	mounjaro™ (tirzepatide) injection	once weekly zepbound™ (tirzepatide) injection 0.5 mL 2.5 mg | 5 mg | 7.5 mg | 10 mg | 12.5 mg | 15 mg
Indication	Type 2 Diabetes	Obesity OR overweight with at least one weight-related condition	Type 2 Diabetes	Obesity (BMI≥30 kg/m2 OR BMI≥27 kg/m2 with one weight-related comorbid condition
Company	Novo Nordisk	Novo Nordisk	Lilly	Lilly
Launch year	2017	2021	2022	2023
Mechanism	GLP-1 receptor agonist	GLP-1 receptor agonist	GIP +GLP-1 receptor agonist	GIP +GLP-1 receptor agonist
Active substance	semaglutide	semaglutide	tirzepatide	tirzepatide
Dose	0.25 mg SC weekly increasing to 2 mg	0.25 mg SC weekly increasing to 2.4 mg	2.5 mg weekly SC increasing to up to 15 mg	2.5 mg weekly SC increasing to 5 mg-15 mg
Patient Population	T2D patients Mean BMI 33	BMI>30 or BMI>27 with a comorbid condition Mean BMI 38	T2D patients Mean BMI 33	BMI>30 or BMI>27 with a comorbid condition Mean BMI 36-38
Weight loss efficacy (monotherapy)	Upto 5% (1 mg) at 30 weeks	Upto 16% (2.4 mg) at 68 weeks[1]	Upto 9% (15 mg) at 40 weeks	Upto 21% (15 mg) at 72 weeks[2]

Source: Zepbound PI; Mounjaro PI; Wegovy PI; Ozempic PI

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Shingles Vaccination rate

- Vaccination Rate has steadily grown over time
- Highest rates of vaccination are in the over 69 age group
- The rate appears to be flattening off after 2017



Source: CDC.gov

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KarXT in Schizophrenia
Summary

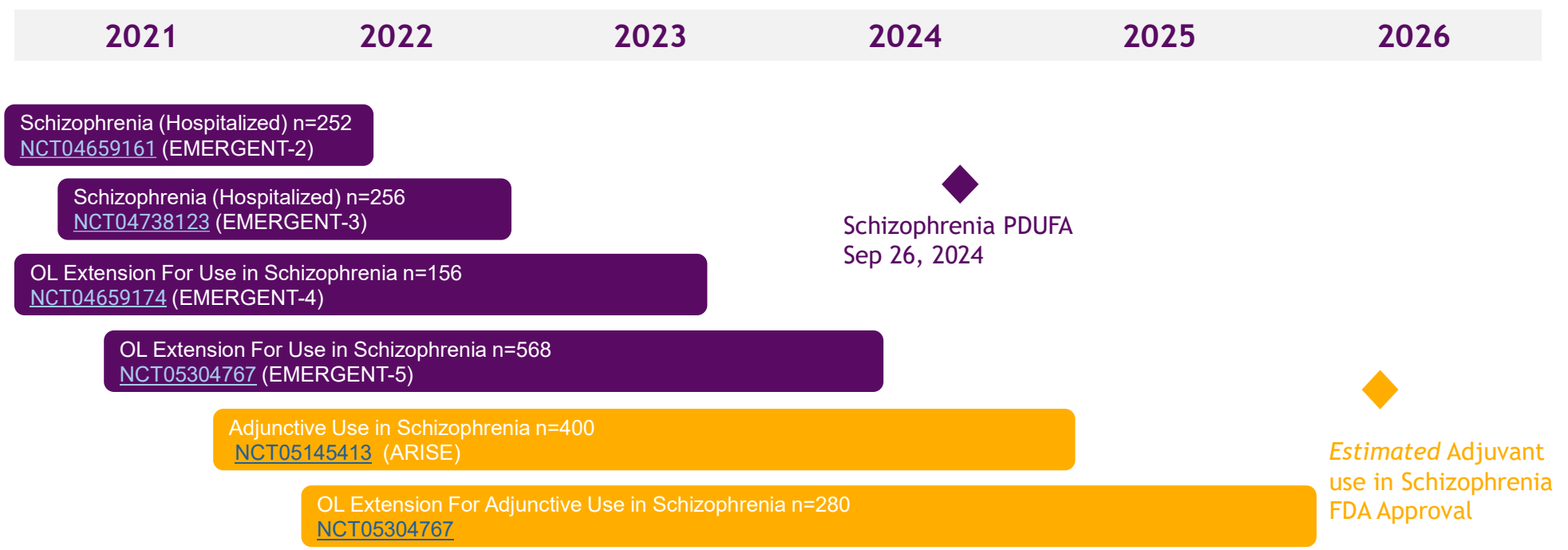
Product	KarXT (xanomeline-trospium)	Product Summary
Mechanism	M1-M4 muscarinic agonist/antagonist	KArXt is a combination drug of xanomeline and trospium. Xanomeline, a M1/M4 agonist, was previously under development for Alzheimer's disease but discontinued due to its cholinergic side effects. By combining with trospium1, a muscarinic antagonist, the AEs are able to be kept at a manageable rate. KarXT will be the first drug with a new mechanism approved in schizophrenia in over 50 years.
Company	BMS (Karuna acquired 03/24)	
Phase	Phase 3 complete; PDUFA 09/2024	
Efficacy	Emergent-2: PANSS -21.2 vs 11.6 placebo[2] Emergent-3: PANSS -20.6 vs-12.2 placebo[3] Emergent-4: (OLE): 75% pts achieved >30% improvement; average PANSS reduction of 33.3-points[4]	

1 Trospium was launched as Sanctura in 1999 for the treatment of overactive bladder
2 Kaul et al 2024
3 Kaul et al 2024 2
4 BMS Press Release Jun 2024

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KarXT in Schizophrenia

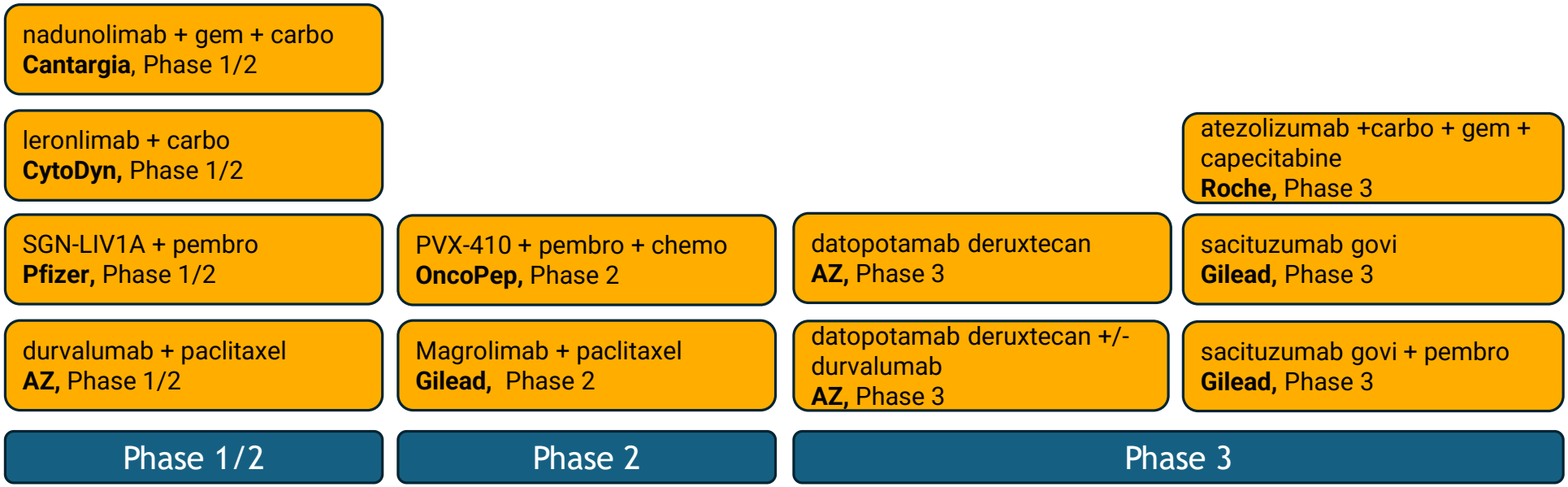
Clinical Trials and Approval Timeline



Additional Phase 2 'EMERGENT-1' trial to be included in FDA approval

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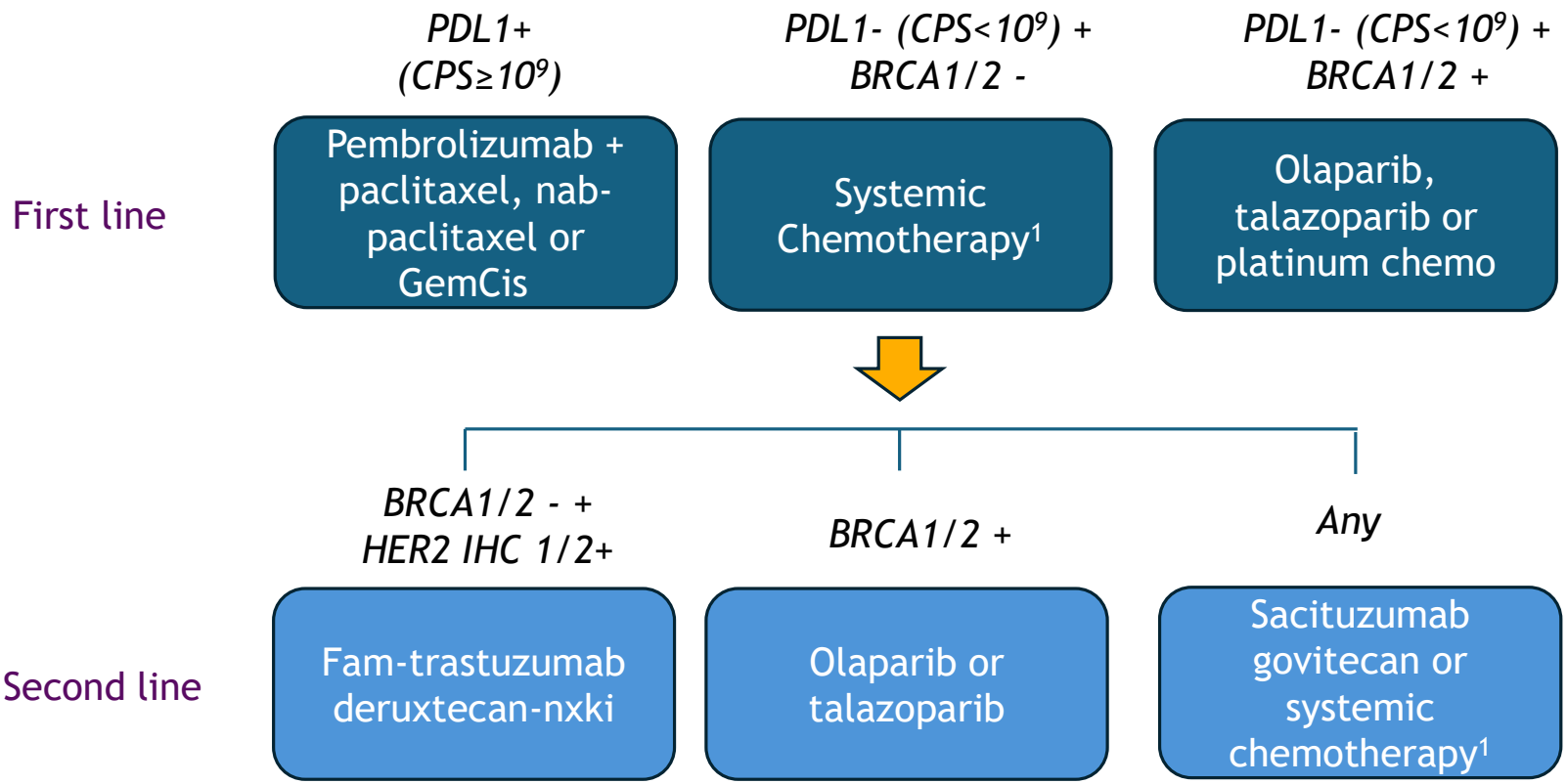
1L Metastatic TNBC Pipeline



TNBC: Triple Negative Breast Cancer

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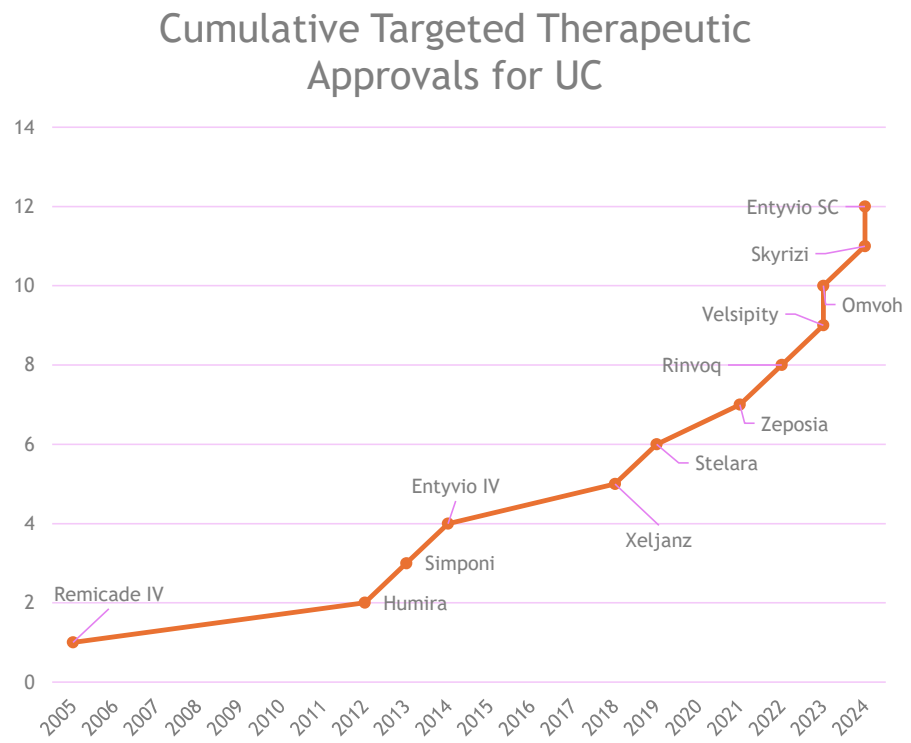
Metastatic TNBC Treatment Guidelines

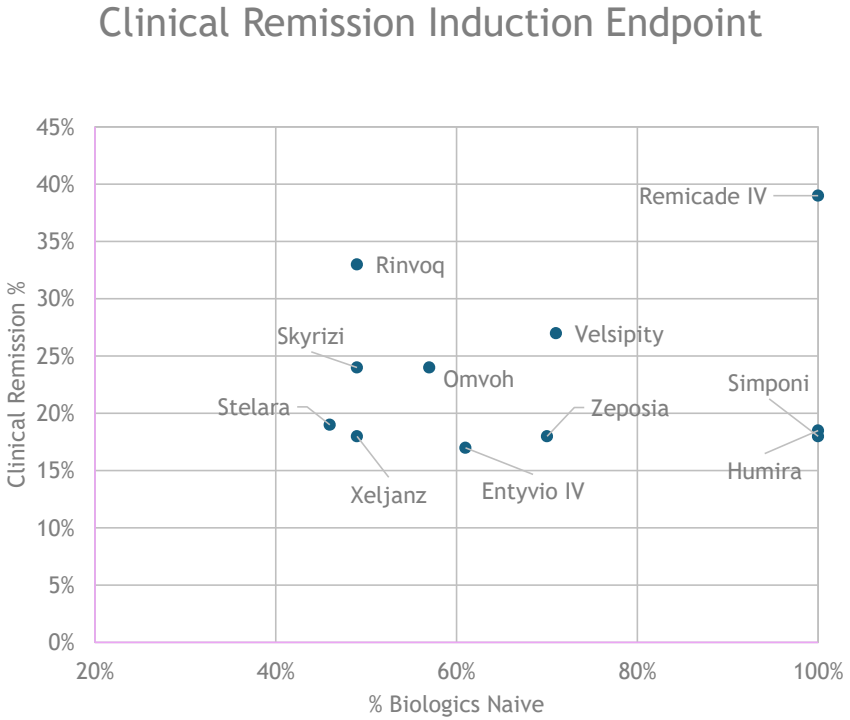


Source: NCCN Guidelines 1 Doxorubicin, Paclitaxel, Capecitabine, Gemcitabine, Vinorelbine or Eribulin

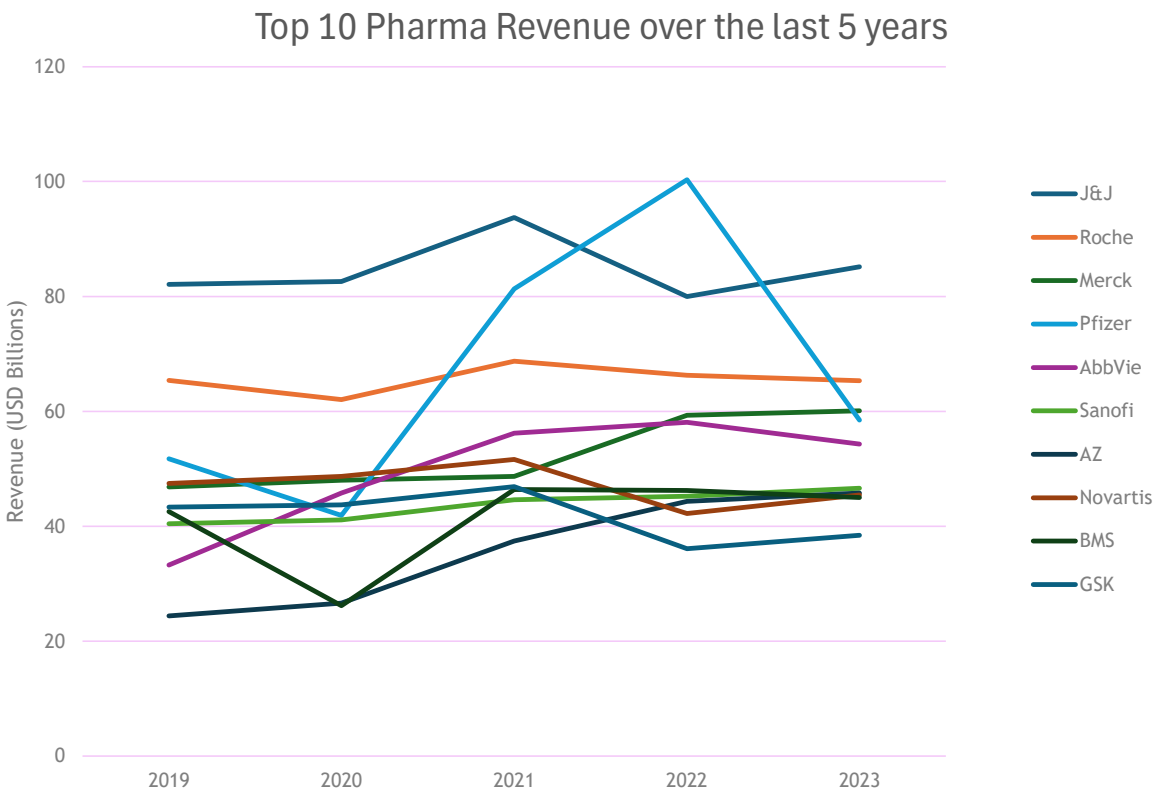
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Evolution of UC treatments over time





Pharma Company Revenues ‘19-’23



	CAGR
J&J	0.7%
Roche	0.0%
Merck	5.1%
Pfizer	2.5%
AbbVie	10.3%
Sanofi	2.9%
AZ	13.4%
Novartis	-0.9%
BMS	1.1%
GSK	-2.4%

Ulcerative Colitis KOLs

IBD KOL Mapping, June 2024

First Name	Last Name	Degrees	Specialty	Institution	Primary Position	Address	Country	Email	Website	Secondary Position(s)	GI Organization Involvement
Séverine	Vermeire	MD PhD	GI	University of Leuven	Professor of Medicine	Translational Research in GastroIntestinal Disorders	Belgium	severine.vermeire@kuleuven.be	https://www.uzleuven.be/en/physicians-and-specialists/severine-vermeire		ECCO - President 2014-2015 BIRD - President 2011-2013
Bruce	Sands	MD, MS	GI	Mount Sinai	Dr. Burrill B. Crohn Professor of Medicine	Feinstein IBD Clinical Center, Icahn School of Medicine at M Sinai, 17 East 1 Street, 5th Floor York, NY, 10029	USA	bruce.sands@mssm.edu	https://profiles.mountsinai.org/bruce-e-sands		CCFA - Chair of the Clinical Research Alliance
William J	Sandborn	MD	GI	UCSD	Professor of Medicine	University of California San D School of Medic 9500 Gilman Dr					
Julian	Panes	MD	GI	Hospital Clinic de Barcelona	Professor of Medicine and the Chief of the Department of Gastroenterology						
Silvio	Danese	MD, PhD	GI	Vita-Salute San Raffaele University	Professor of Gastroenterology, Vita-Salute San Raffaele University	IRCCS San Raf Scientific Institu Olgettina, 60 20 Milano					
Geert	D'Haens	MD, PhD	GI	Academic Medical Centre, IBD Centre Gastroenterology and Endoscopy	Professor, Gastroenterology and Hepatology/AGEM	Amsterdam UM Meibergdreef15 1105 AZ Amste					

Bruce Sands, MD, MS

Dr. Burrill B. Crohn Professor of Medicine
Feinstein IBD Clinical Center,
Icahn School of Medicine at Mount Sinai,
17 East 102nd Street, 5th Floor, New York, NY, 10029



Training		
MD	Boston University	
Residency	University of Pennsylvania	
Research Fellowship(s)	Massachusetts General	
Master of Science (Epidemiology)	Harvard School of Public Health	
Ulcerative Colitis Clinical Trial Involvement		
Etrasimod, Phase 3	NCT03945188; NCT03996369	Vermeire et al 2024
Subcutaneous Infliximab (CT-P13 SC), Phase 3	NCT04205643	Hanauer et al 2024
Ozanimod, Phase 3	NCT02435992; NCT02531126	Sands et al 2024
Mirikizumab, Phase 3	NCT03518086; NCT03524092	D'Haens et al 2023