






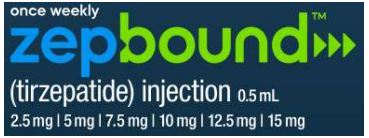
# Horizon BioInsights

June 2024

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# GLP-1 Comparison Table

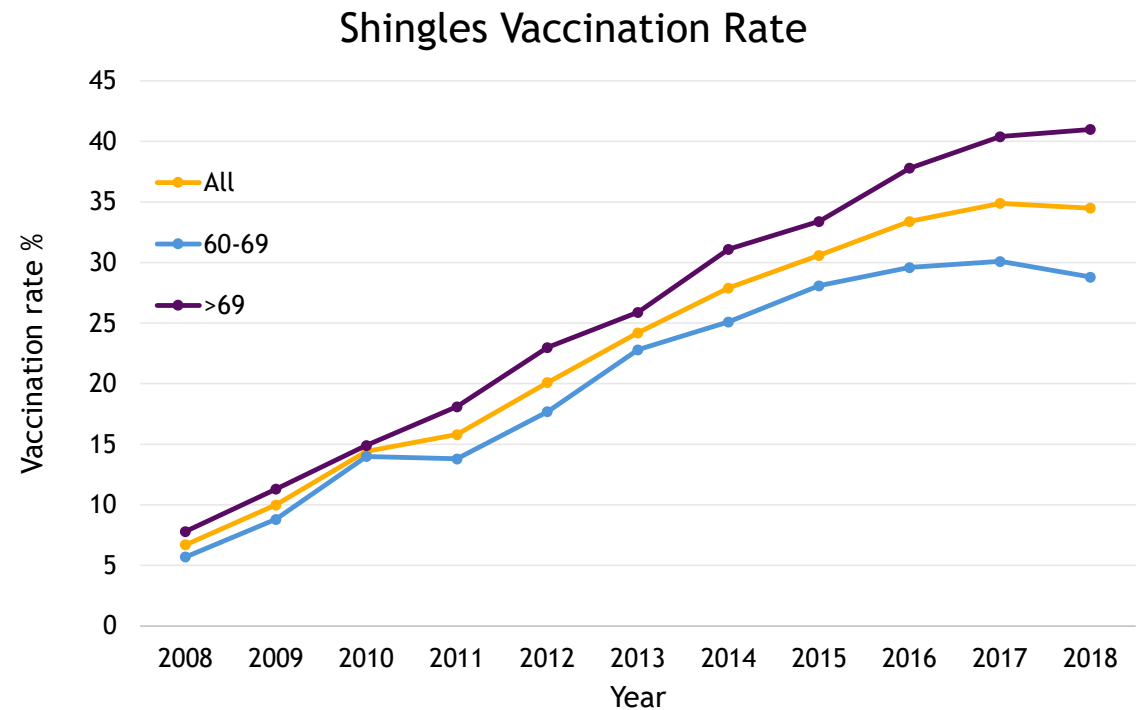


				
<b>Indication</b>	Type 2 Diabetes	Obesity OR overweight with at least one weight-related condition	Type 2 Diabetes	Obesity (BMI $\geq$ 30 kg/m <sup>2</sup> OR BMI $\geq$ 27 kg/m <sup>2</sup> with one weight-related comorbid condition)
<b>Company</b>	Novo Nordisk	Novo Nordisk	Lilly	Lilly
<b>Launch year</b>	2017	2021	2022	2023
<b>Mechanism</b>	GLP-1 receptor agonist	GLP-1 receptor agonist	GIP +GLP-1 receptor agonist	GIP +GLP-1 receptor agonist
<b>Active substance</b>	semaglutide	semaglutide	tirzepatide	tirzepatide
<b>Dose</b>	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
<b>Patient Population</b>	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
<b>Weight loss efficacy (monotherapy)</b>	Upto 5% (1 mg) at 30 weeks	Upto 16% (2.4 mg) at 68 weeks <sup>1</sup>	Upto 9% (15 mg) at 40 weeks	Upto 21% (15 mg) at 72 weeks <sup>2</sup>

# 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



# KarXT in Schizophrenia

## Summary



<b>Product</b>	KarXT (xanomeline-trospium)	<b>Product Summary</b> <p>KArXt is a combination drug of xanomeline and trospium.</p> <p>Xanomeline, a M1/M4 agonist, was previously under development for Alzheimer's disease but discontinued due to its cholinergic side effects. By combining with trospium<sup>1</sup>, a muscarinic antagonist, the AEs are able to be kept at a manageable rate.</p> <p>KarXT will be the first drug with a new mechanism approved in schizophrenia in over 50 years.</p>
<b>Mechanism</b>	M1-M4 muscarinic agonist/antagonist	
<b>Company</b>	BMS (Karuna acquired 03/24)	
<b>Phase</b>	Phase 3 complete; PDUFA 09/2024	
<b>Efficacy</b>	Emergent-2: PANSS -21.2 vs 11.6 placebo <sup>2</sup> Emergent-3: PANSS -20.6 vs-12.2 placebo <sup>3</sup> Emergent-4: (OLE): 75% pts achieved >30% improvement; average PANSS reduction of 33.3-points <sup>4</sup>	

<sup>1</sup> Trospium was launched as Sanctura in 1999 for the treatment of overactive bladder

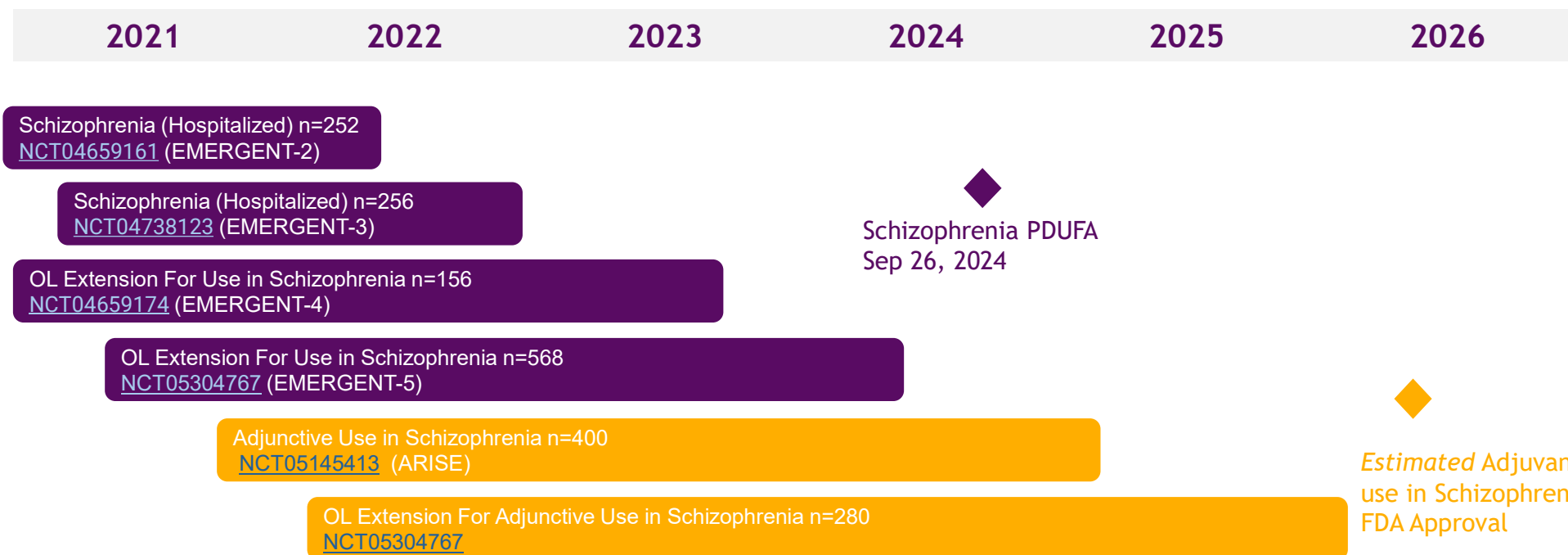
<sup>2</sup> Kaul et al 2024

<sup>3</sup> Kaul et al 2024 2

<sup>4</sup> BMS Press Release Jun 2024

# KarXT in Schizophrenia

## Clinical Trials and Approval Timeline

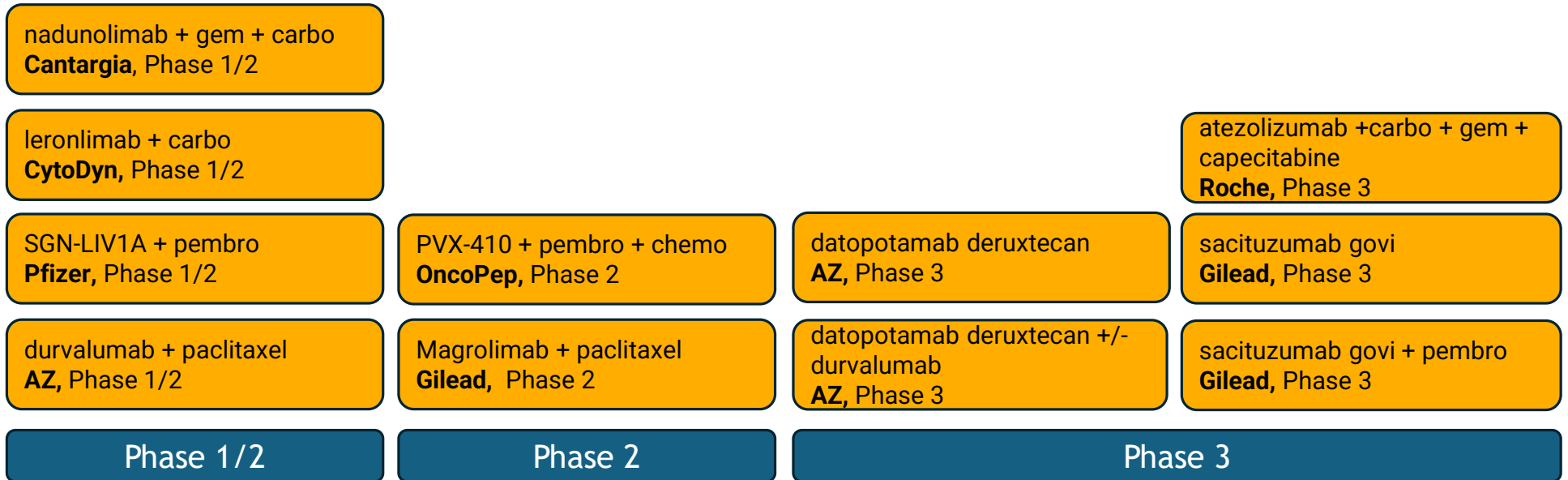


Additional Phase 2 'EMERGENT-1' trial to be included in FDA approval

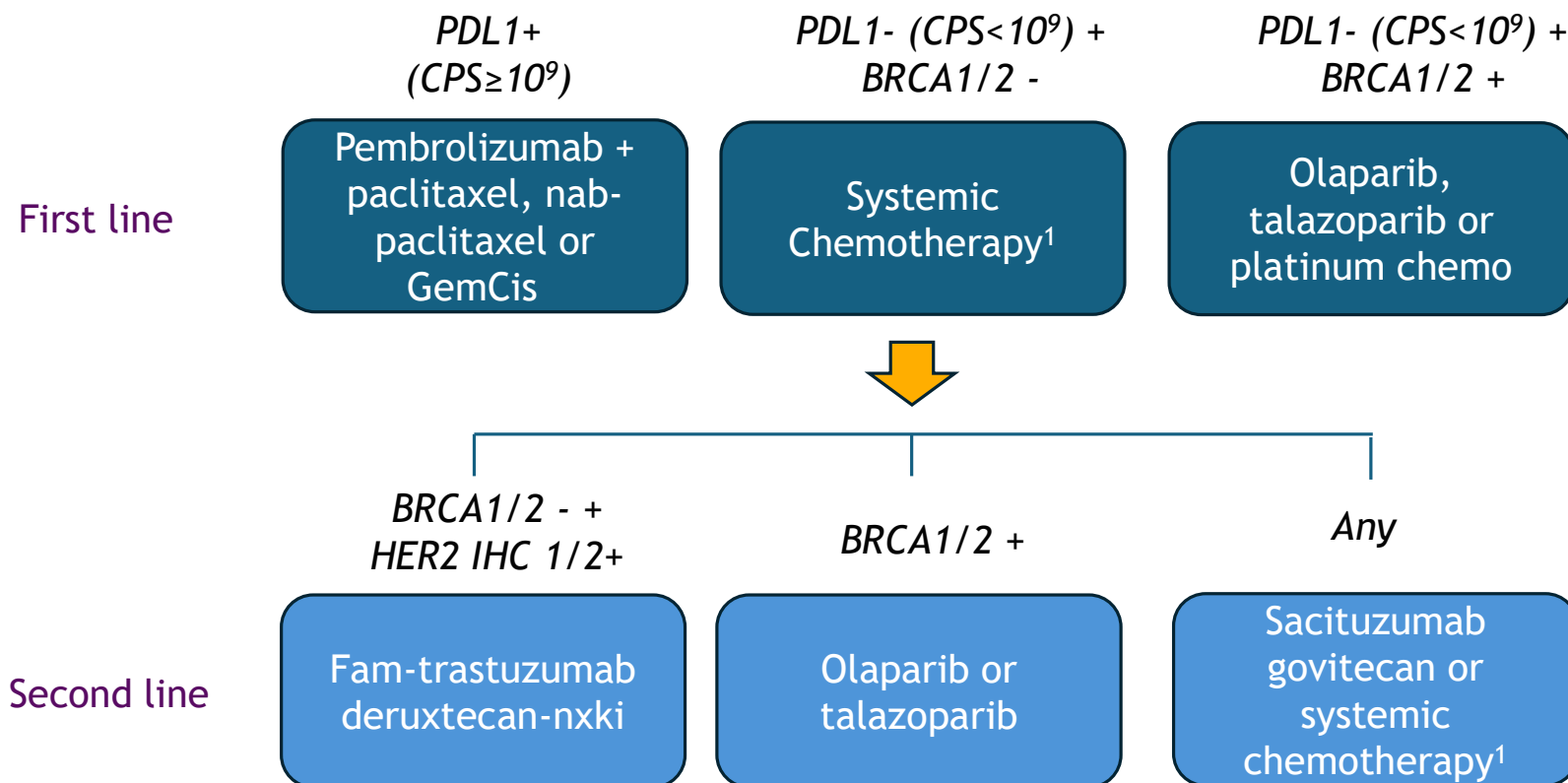
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# 1L Metastatic TNBC Pipeline



# Metastatic TNBC Treatment Guidelines



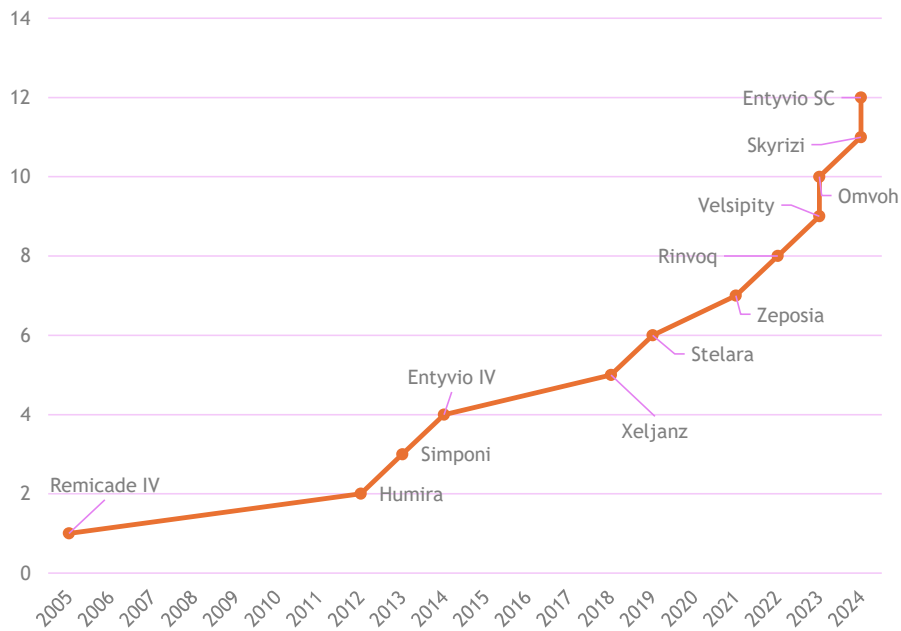
Source: NCCN Guidelines 1 Doxorubicin, Paclitaxel, Capecitabine, Gemcitabine, Vinorelbine or Eribulin

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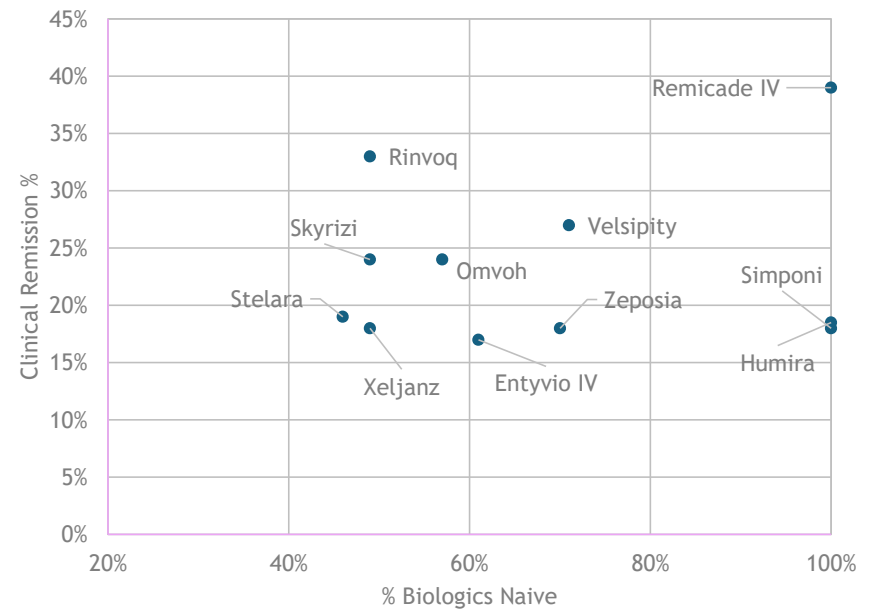
# Evolution of UC treatments over time



Cumulative Targeted Therapeutic Approvals for UC



Clinical Remission Induction Endpoint

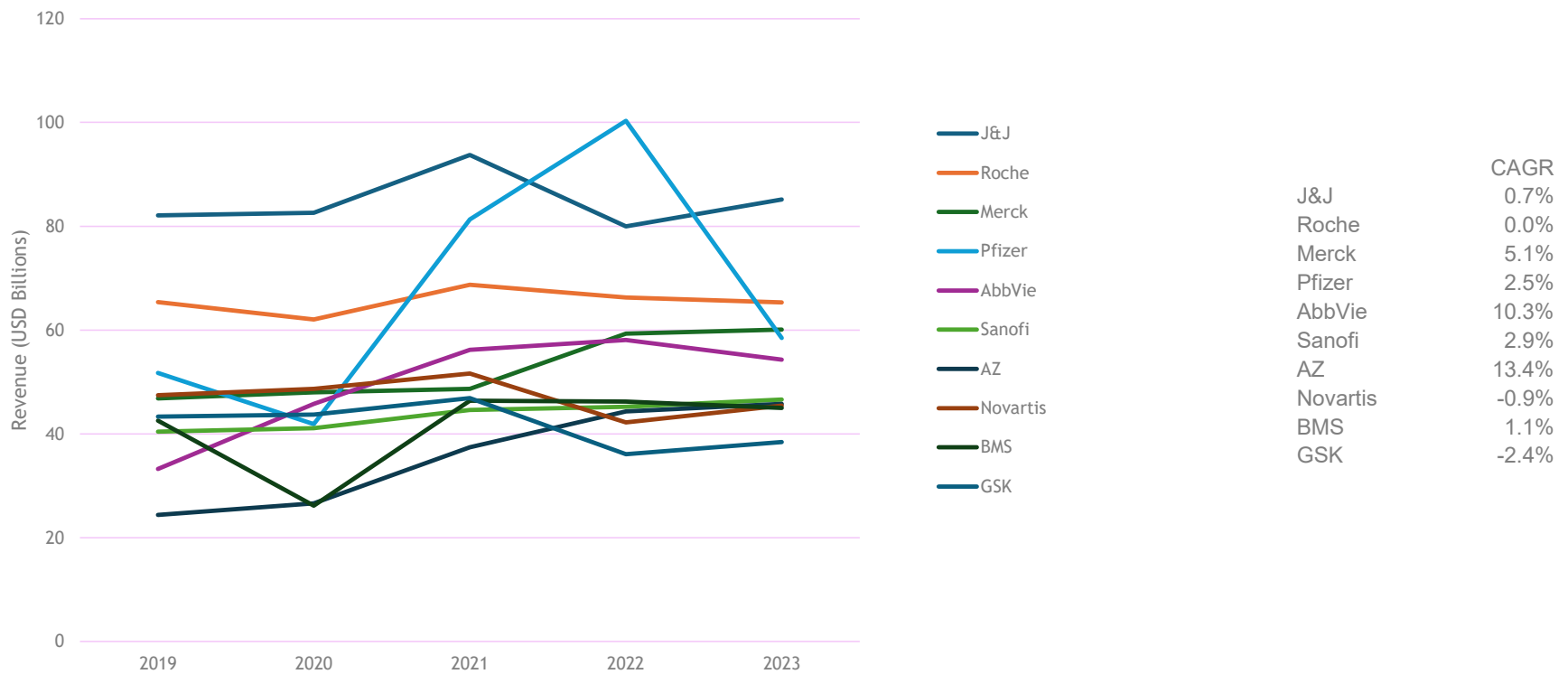




# Pharma Company Revenues '19-'23



Top 10 Pharma Revenue over the last 5 years




# Ulcerative Colitis KOLs



	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>IBD KOL Mapping, June 2024</b>											
2												
3	First Name	Last Name	Degrees	Specialty	Institution	Primary Position	Address	Country	Email	Website	Secondary Position(s)	GI Organization Involvement
4	Séverine	Vermeire	MD PhD	GI	University of Leuven	Professor of Medicine	Translational Research in Gastrointestinal Disorders	Belgium	<a href="mailto:severine.vermeire@kuleuven.be">severine.vermeire@kuleuven.be</a>	<a href="https://www.uzleuven.be/en/physicians-and-specialists/severine-vermeire">https://www.uzleuven.be/en/physicians-and-specialists/severine-vermeire</a>		ECCO - President 2014-2015 BIRD - President 2011-2013
5	Bruce	Sands	MD, MS	GI	Mount Sinai	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	USA	<a href="mailto:bruce.sands@mssm.edu">bruce.sands@mssm.edu</a>	<a href="https://profiles.mssm.edu/bruce-e-sands">https://profiles.mssm.edu/bruce-e-sands</a>		CCFA - Chair of the Clinical Research Alliance
6	William J	Sandborn	MD	GI	UCSD	Professor of Medicine	University of California San Diego School of Medicine, 9500 Gilman Drive					
7	Julian	Panes	MD	GI	Hospital Clinic de Barcelona	Professor of Medicine and the Chief of the Department of Gastroenterology						
8	Silvio	Danese	MD, PhD	GI	Vita-Salute San Raffaele University	Professor of Gastroenterology, Vita-Salute San Raffaele University	IRCCS San Raffaele Scientific Institute, Olgettina, 60 20132 Milano					
9	Geert	D'Haens	MD, PhD	GI	Academic Medical Centre, IBD Centre Gastroenterology and Endoscopy	Professor, Gastroenterology and Hepatology/AGEM	Amsterdam UMC, Meibergdreef 15, 1105 AZ Amsterdam					

<b>Bruce Sands, MD, MS</b>	
<p>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</p> 	
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	<a href="#">NCT03945188</a> , <a href="#">NCT03996369</a> <a href="#">Vermeire et al 2024</a>
Subcutaneous Infliximab (CT-P13 SC), Phase 3	<a href="#">NCT04205643</a> <a href="#">Hanauer et al 2024</a>
Ozanimod, Phase 3	<a href="#">NCT02435992</a> , <a href="#">NCT02531126</a> <a href="#">Sands et al 2024</a>
Mirdizumab, Phase 3	<a href="#">NCT03518086</a> , <a href="#">NCT03524092</a> <a href="#">D'Haens et al 2023</a>