GUILD
Gastroenterology Updates • IBD • Liver Disease

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Biosimilars in IBD

Fernando Velayos, MD MPH
Clinical Lead, Regional Program for
Inflammatory Bowel Disease
Kaiser Permanente
Northern California

Disclosures

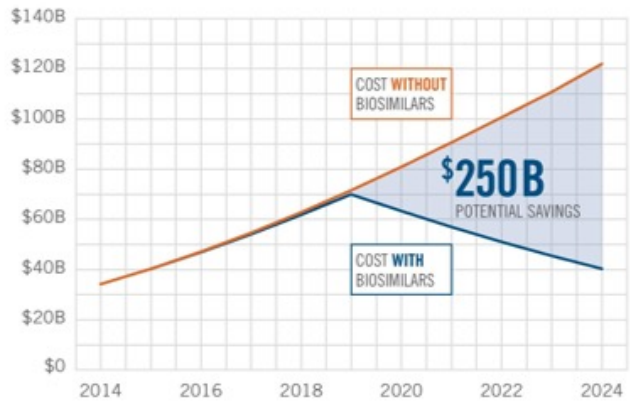
- None

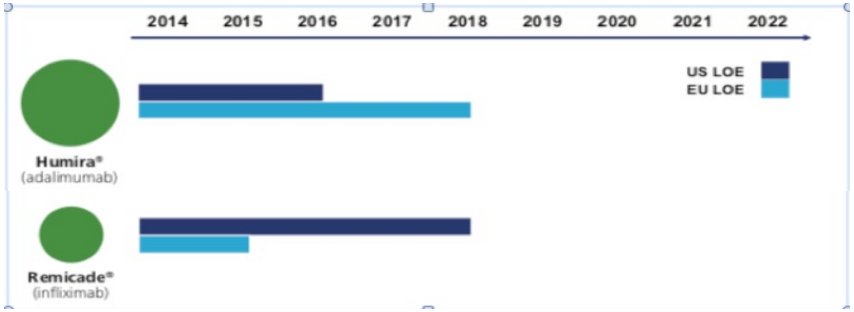
Learning Objectives

- Review the Biosimilar Development Process and Approval for IBD
- Review scenarios in which biosimilars enter practice
- Review data for biosimilar use in IBD

Why are we discussing biosimilars

- Biologics are expensive to develop and to use and their use is growing
  - <2% people use biologics, but represent ~40% all prescription drug spending
- Expiration of patents
- Biosimilars are a mechanism to (potentially) reduce costs and increase access





Mulcahy AW, et al. Rand Health Q. 2018;7:3; DiMasi JA, et al. J Health Econ. 2016;47:20-33

http://lab.express-scripts.com/lab/insights/drug-options/~/link.aspx?_id=905e58d6e6494fb4ae1b2581566b3538&_z=z

https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-biosimilars-whitepaper-final.pdf

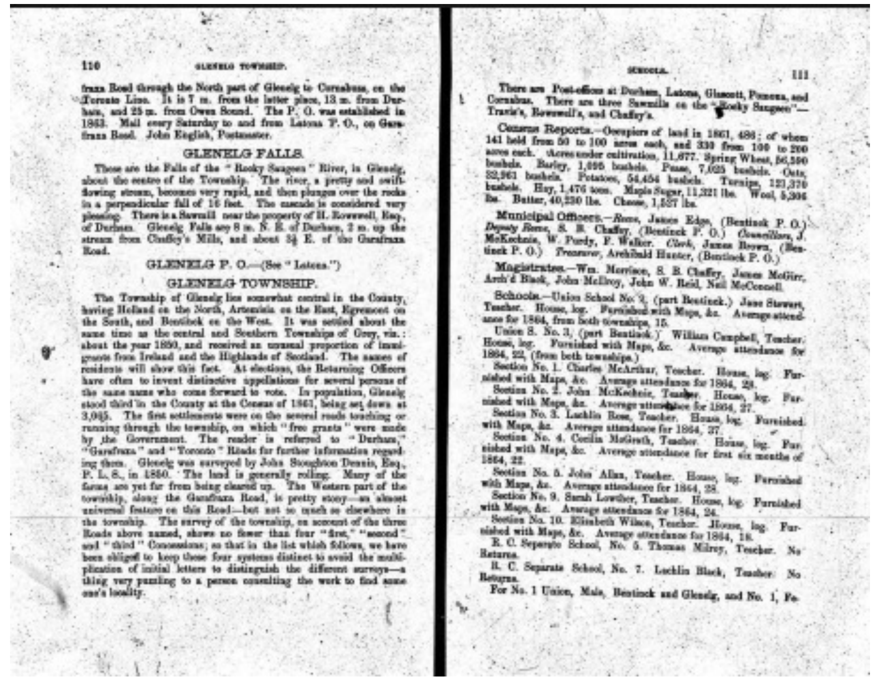
Why are we discussing biosimilars

- There is legislation to promote biosimilars
  - Biologics Price Competition and Innovation Act of 2009 (BPCI Act)
  - Abbreviated licensure pathway for biological products shown to be biosimilar or interchangeable with an FDA-licensed originator or reference product

Implementation of the Biologics Price Competition and Innovation Act of 2009 | FDA

How to conceptualize a biosimilar

- Biosimilars are similar to the original, but not identical
- FDA processes regulate what portions of the "copy" and original need to be similar and to what degree



110 GLENELG TOWNSHIP.

fraxa Road through the North part of Glenelg to Cornabus, on the Toronto Line. It is 7 m. from the latter place, 13 m. from Durham, and 25 m. from Owen Sound. The P. O. was established in 1863. Mail every Saturday to and from Latona P. O., on Garafraxa Road. John English, Postmaster.

GLENELG FALLS.

These are the Falls of the "Rocky Saugeen" River, in Glenelg, about the centre of the Township. The river, a pretty and swift-flowing stream, becomes very rapid, and then plunges over the rocks in a perpendicular fall of 16 feet. The cascade is considered very pleasing. There is a Sawmill near the property of H. Rowswell, Esq., of Durham. Glenelg Falls are 8 m. N. E. of Durham, 2 m. up the stream from Chaffey's Mills, and about 3½ E. of the Garafraxa Road.

GLENELG P. O.—(See "Latona.")

GLENELG TOWNSHIP.

The Township of Glenelg lies somewhat central in the County, having Holland on the North, Artemisia on the East, Egremont on the South, and Bentinck on the West. It was settled about the same time as the central and Southern Townships of Grey, viz.: about the year 1850, and received an unusual proportion of immigrants from Ireland and the Highlands of Scotland. The names of residents will show this fact. At elections, the Returning Officers have often to invent distinctive appellations for several persons of the same name who come forward to vote. In population, Glenelg stood third in the County at the Census of 1861, being set down at 3,045. The first settlements were on the several roads touching or running through the township, on which "free grants" were made by the Government. The reader is referred to "Durham," "Garafraxa" and "Toronto" Roads for further information regarding them. Glenelg was surveyed by John Stoughton Dennis, Esq., P. L. S., in 1850. The land is generally rolling. Many of the farms are yet far from being cleared up. The Western part of the township, along the Garafraxa Road, is pretty stony—an almost universal feature on this Road—but not so much as elsewhere in the township. The survey of the township, on account of the three Roads above named, shows no fewer than four "first," "second" and "third" Concessions; so that in the list which follows, we have been obliged to keep these four systems distinct to avoid the multiplication of initial letters to distinguish the different surveys—a thing very puzzling to a person consulting the work to find some one's locality.

SCHOOLS. 111

There are Post-offices at Durham, Latona, Glascott, Pomona, and Cornabus. There are three Sawmills on the "Rocky Saugeen"—Travis's, Rowswell's, and Chaffey's.

Census Reports.—Occupiers of land in 1861, 486; of whom 141 held from 50 to 100 acres each, and 330 from 100 to 200 acres each. Acres under cultivation, 11,677. Spring Wheat, 56,590 bushels. Barley, 1,095 bushels. Peas, 7,025 bushels. Oats, 32,961 bushels. Potatoes, 54,454 bushels. Turnips, 121,370 bushels. Hay, 1,476 tons. Maple Sugar, 11,321 lbs. Wool, 5,306 lbs. Butter, 40,230 lbs. Cheese, 1,527 lbs.

Municipal Officers.—*Reeve*, James Edge, (Bentinck P. O.) *Deputy Reeve*, S. B. Chaffey, (Bentinck P. O.) *Councillors*, J. McKechnie, W. Purdy, F. Walker. *Clerk*, James Brown, (Bentinck P. O.) *Treasurer*, Archibald Hunter, (Bentinck P. O.)

Magistrates.—Wm. Morrison, S. B. Chaffey, James McGirr, Arch'd Black, John McIlroy, John W. Reid, Neil McConnell.

Schools.—Union School No. 2, (part Bentinck.) Jane Stewart, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, from both townships, 15.

Union S. No. 3, (part Bentinck.) William Campbell, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 22, (from both townships.)

Section No. 1. Charles McArthur, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 28.

Section No. 2. John McKechnie, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 27.

Section No. 3. Lachlin Ross, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 37.

Section No. 4. Cecilia McGrath, Teacher. House, log. Furnished with Maps, &c. Average attendance for first six months of 1864, 22.

Section No. 5. John Allan, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 28.

Section No. 9. Sarah Lowther, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 24.

Section No. 10. Elizabeth Wilson, Teacher. House, log. Furnished with Maps, &c. Average attendance for 1864, 18.

R. C. Separate School, No. 5. Thomas Milroy, Teacher. No Returns.

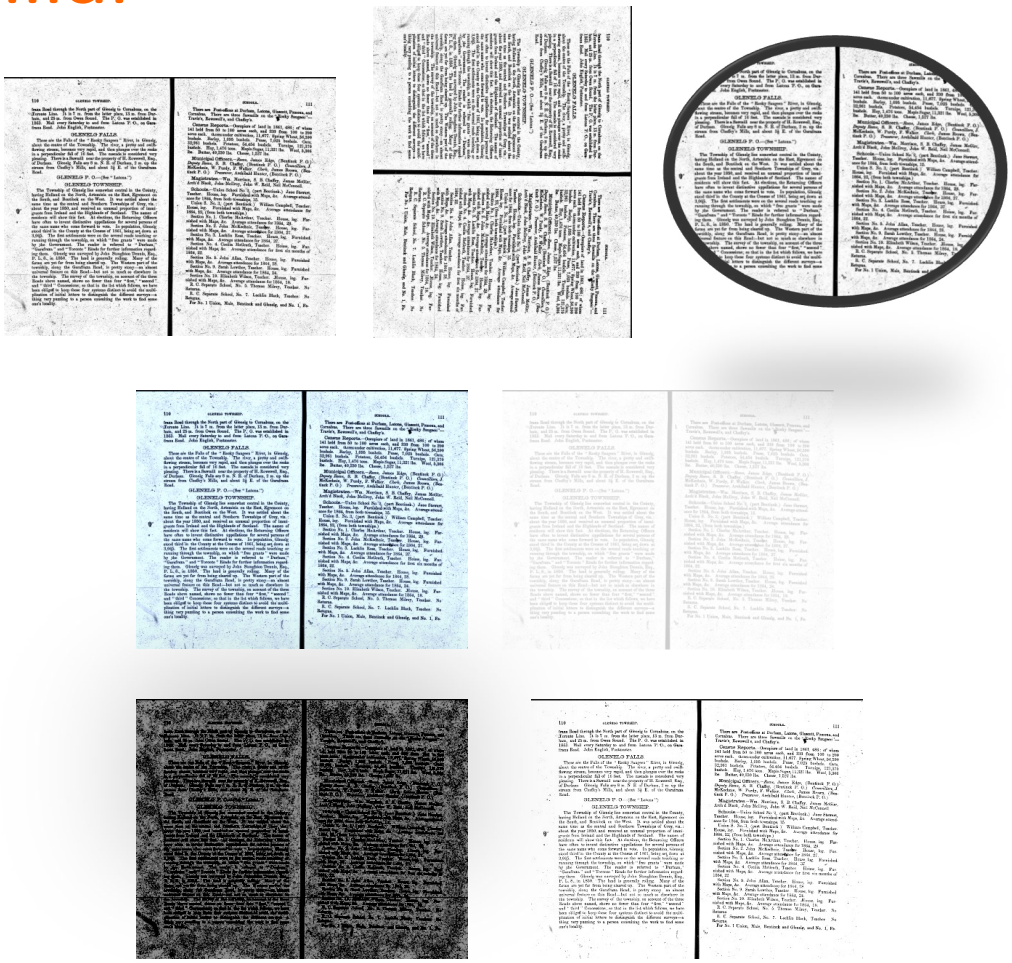
R. C. Separate School, No. 7. Lachlin Black, Teacher. No Returns.

For No. 1 Union, Male, Bentinck and Glenelg, and No. 1, Fe-

1. Tao X et al. Plos One 2012;7:e35704.

Which of these is a “similar”

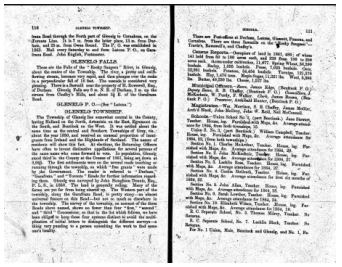
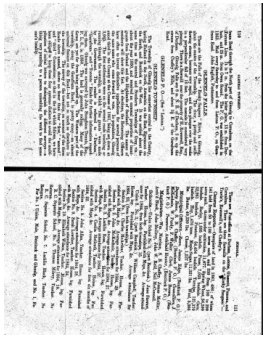
- Biosimilars are similar to the original, but not identical
- FDA processes regulate what portions of the “copy” and original need to be similar and to what degree

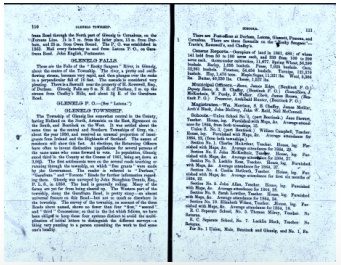


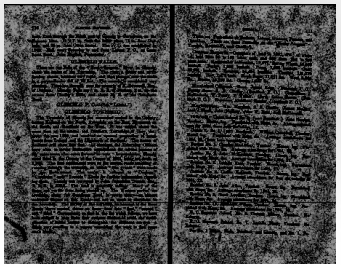
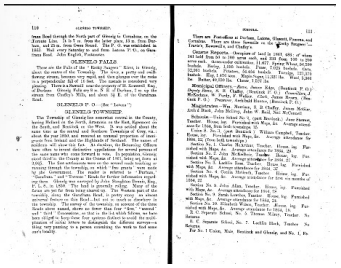
1. Tao X et al. Plos One 2012;7:e35704.

Definition of biosimilar

- US Food and Drug Administration
  - *"**Highly similar** to the reference product not withstanding **minor differences** in clinically inactive components with **no clinically meaningfully differences…safety, potency, purity**"*
- European Medicines Agency
  - *"**Essentially the same** biological substance, through there may be **minor differences**… will have been shown **not affect safety or effectiveness**"*
- World Health Organization
  - *"**Similar** in terms of **quality, safety, and efficacy** to an already license reference biotherapeutic product"*



1. US FDA. Quality considerations in demonstrating biosimilarity to a reference product. 2015. **2.** EMA. Questions and answers on biosimilar medicines (similar biological medicinal products). 2012. **3.** WHO. Guidelines on evaluation of similar biotherapeutic products. 2009.

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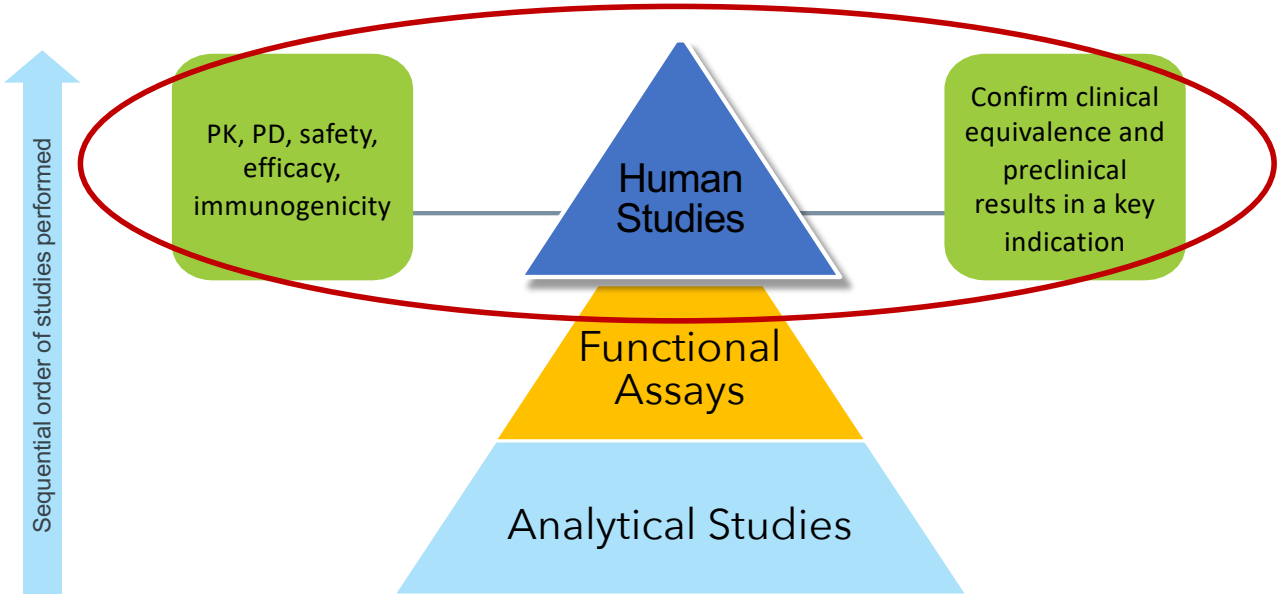
How to reduce development costs and expedite time to market

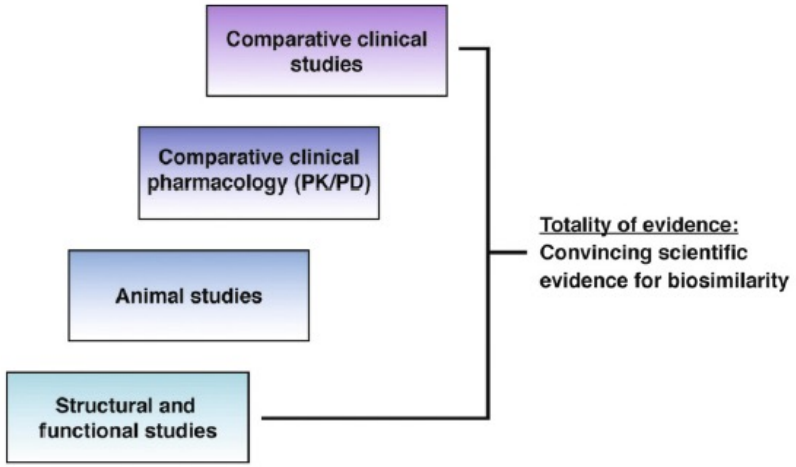


How to reduce development costs and expedite time to market

Extrapolation

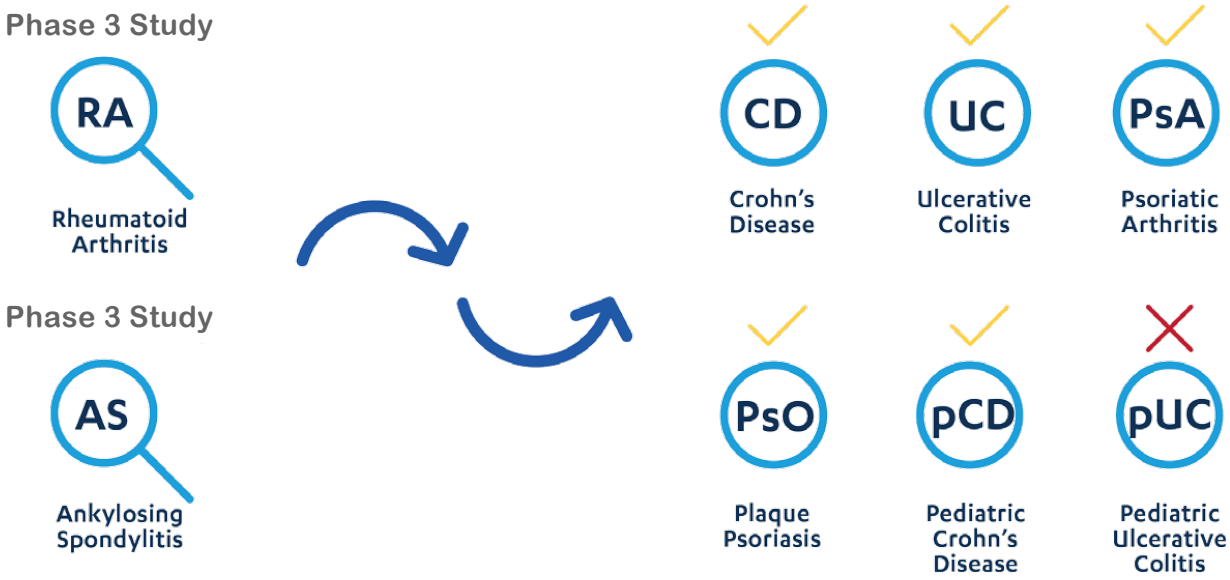
- Clinical trials in one indication used as rationale for clinical use in other indications for which the originator biological product is approved[1]
- Requires appropriate scientific justification[1]

Totality of Evidence



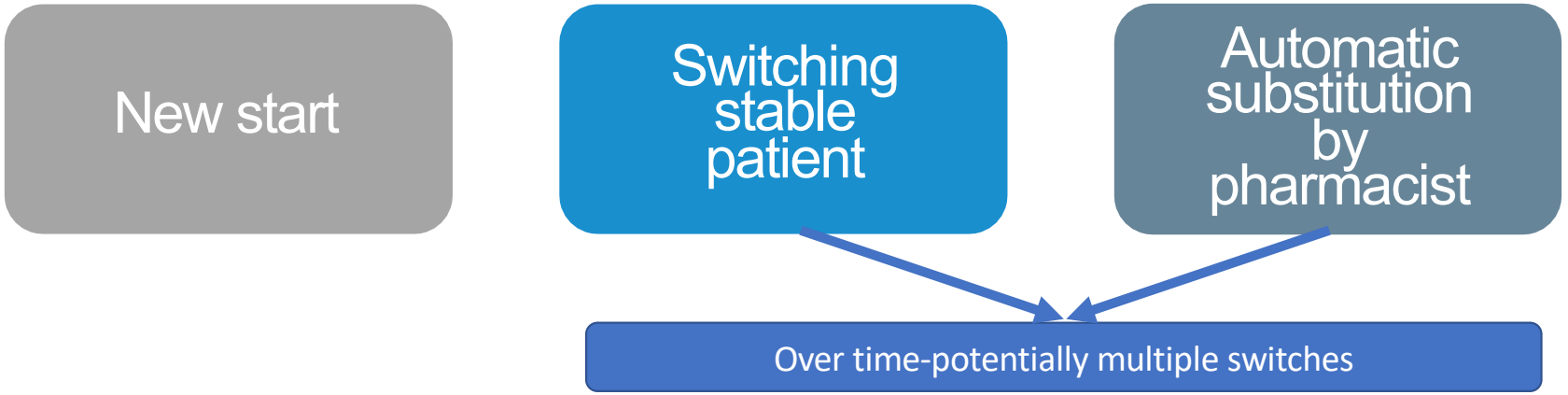
1. US FDA. Biosimilars: Questions and answers regarding implementation of the Biologics Price Competition and Innovation Act of 2009. 2012. **2.** Weise M et al. Blood 2012;120:5111–5117. **3.** US FDA. Scientific considerations in demonstrating biosimilarity to a reference product. 2012. **4.** EMA. Guideline on similar biological medicinal products containing biotechnology- derived proteins as active substance: non-clinical and clinical issues. 2013. **5.** Health Canada. Information and submission requirements for subsequent entry biologics (SEBs). 2010. ww.fda.gov/Downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM291128.pdf. Published April 2015. Accessed January 26, 2016; Raffels et al CGH 2019.

Example- indications for infliximab-dyyb were extrapolated - created concern in IBD patients and providers



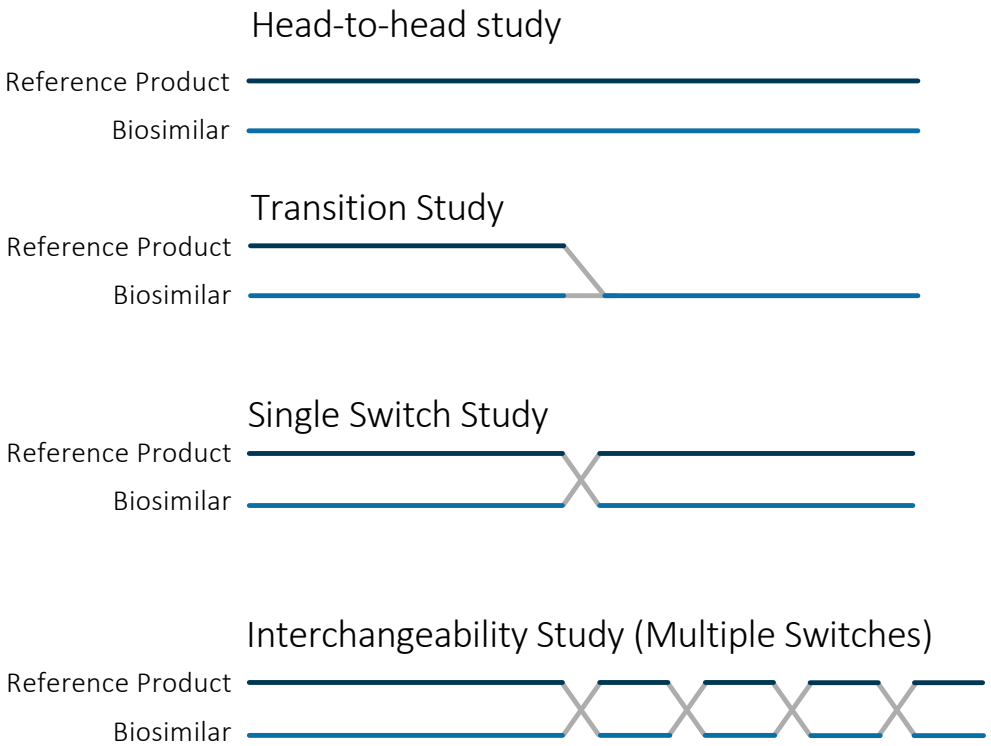
1. Yoo D et al. Ann Rheum Dis, 2013. **2.** Park W et al. Ann Rheum Dis, 2013. **3.** FDA approves Inflectra, a biosimilar to Remicade [news release]. Silver Spring, MD: US Food and Drug Administration; April 5, 2016. http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/UCM494227.htm. Accessed February 26, 2018

Scenarios in which biosimilars enter practice



1. US FDA. Information for consumers (biosimilars). Accessed April 2015. Accessed April 2015. **2.** US FDA. Information for industry (biosimilars). Accessed April 2015. **3.** NCSL. State laws and legislation related to biologic medications and substitution of biosimilars. Accessed April 2015.

Types of biosimilar studies



Faccin F et al. Expert Opin Biol Ther, 2016.
Nonproprietary Naming of Biological Products Guidance for Industry (fda.gov)

Biologic naming convention (FDA):

- Each originator biological product, related biological product, and biosimilar product will be a proper name that is a combination of the core name and a distinguishing suffix that is devoid of meaning and composed of four lowercase letters.

Case 1: New start

- 27 yo man with moderate-severe UC is hospitalized for difficult to control disease
- Condition is stabilized and discharged, and he considers to start biologic therapy
- After discussion, the decision to start infliximab-dyyb is made
- He raises concerns regarding how biosimilar will work in his condition compared to the name brand and if there is evidence it will work in his condition

Effectiveness and Safety of Reference and Biosimilar IFX in CD: A French Equivalence Study

5050 IFX naïve CD pts Started
on IFX or CT-P13 (Inflectra)
Database study

Event	Multivariable Cox Model	
	Hazard Ratio (95% CI)	***P* Value**
Primary outcome: composite end point*	0.92 (0.85-0.99)	
All-cause hospitalization†	0.92 (0.83-1.01)	0.088
CD-related hospitalization‡	1.00 (0.90-1.11)	>0.20
CD-related surgery§	1.09 (0.92-1.28)	>0.20
Colon/small-bowel surgery‖	1.10 (0.91-1.34)	>0.20
Dispensing of other biologic therapy¶	0.93 (0.79-1.08)	>0.20

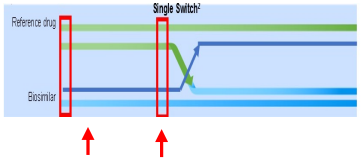
Meyer et al Ann Internal Medicine 2018

Effectiveness and Safety of Reference and Biosimilar IFX in CD: A French Equivalence Study

Event	Incidence Rate per 1000 Person-Years		Cox Model	
	RP Group	CT-P13 Group	HR (95% CI)	*P* Value
Serious infection*	42.3	39.8	0.82 (0.61–1.11)	0.20
Tuberculosis†	2.1	2.8	1.10 (0.36–3.34)	>0.20
Cancer‡	6.5	4.9	0.66 (0.33–1.32)	>0.20

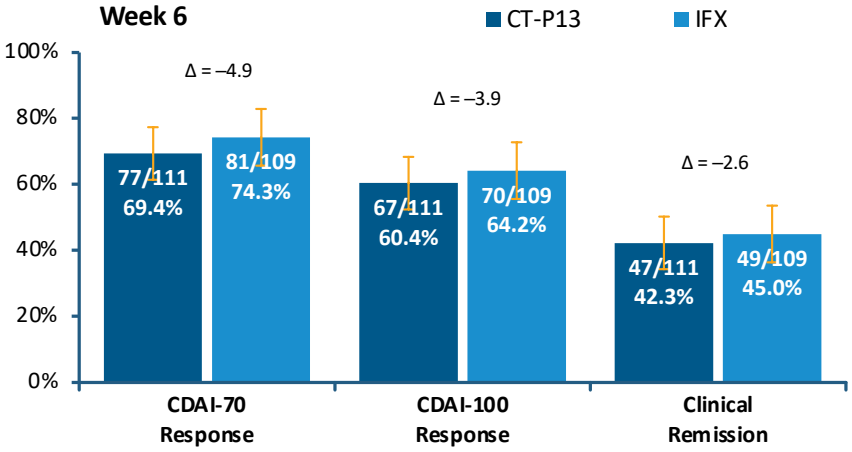
Meyer et al Ann Internal Medicine 2018

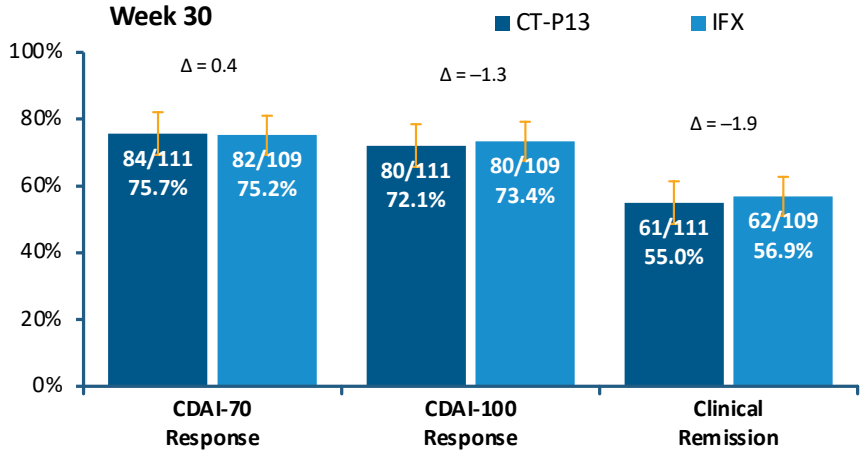
The efficacy and safety of Infliximab-dyyb (CT-P13) is similar to Infliximab RP (IFX): randomized controlled trial



Wk 6 (induction) Wk 30 (maintenance)

- **Study design:** Randomized, double-blind, trial of 220 moderate to severe CD with infliximab-dyyb or infliximab RP
- **Primary Endpoint:** CLINICAL response and remission at week 6 (defined by CDAI) and week 30

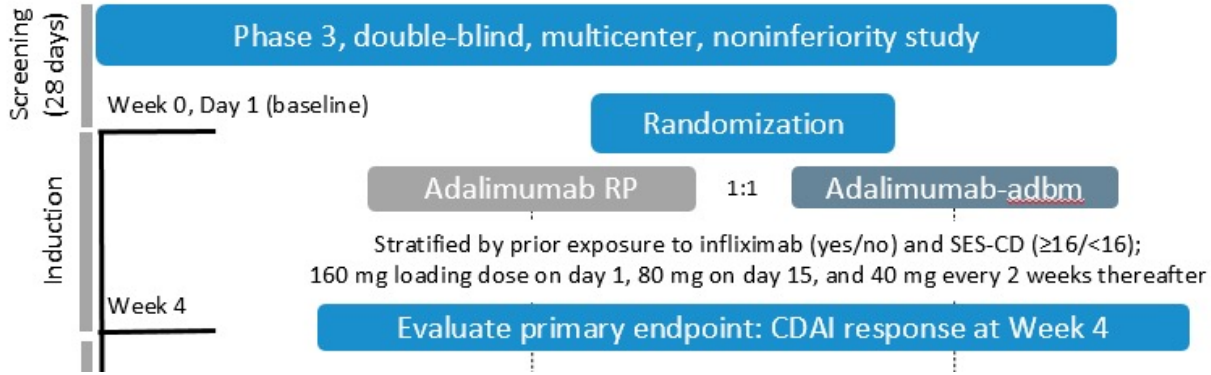




- No differences in FCP/CRP, adverse events, drug levels or ATIs

Ye BD et al. Lancet, 2019.

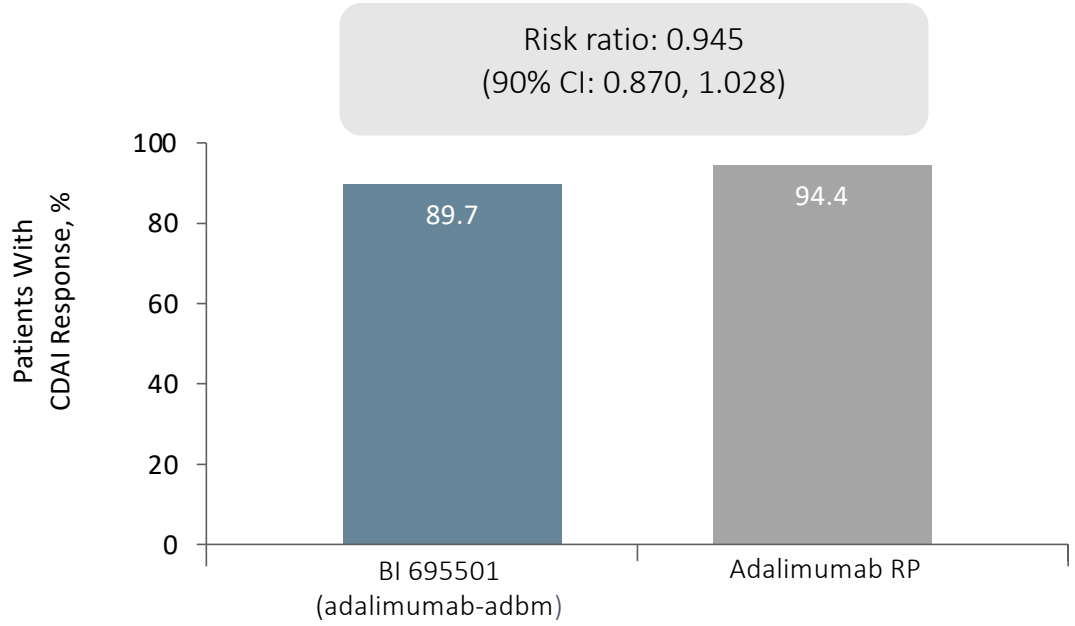
VOLTAIRE-CD study: Safety and efficacy of Adalimumab-adbm (BI 695501) compared with EU-approved Adalimumab RP



Hanauer SB, et al. DDW 2020. Abstract 1862.

Results: Primary endpoint analysis

- Primary endpoint analysis: ≥70-point decrease in CDAI score between baseline and week 4 (full analysis set)



Safety profiles were similar between treatment arms, with no unexpected safety signals

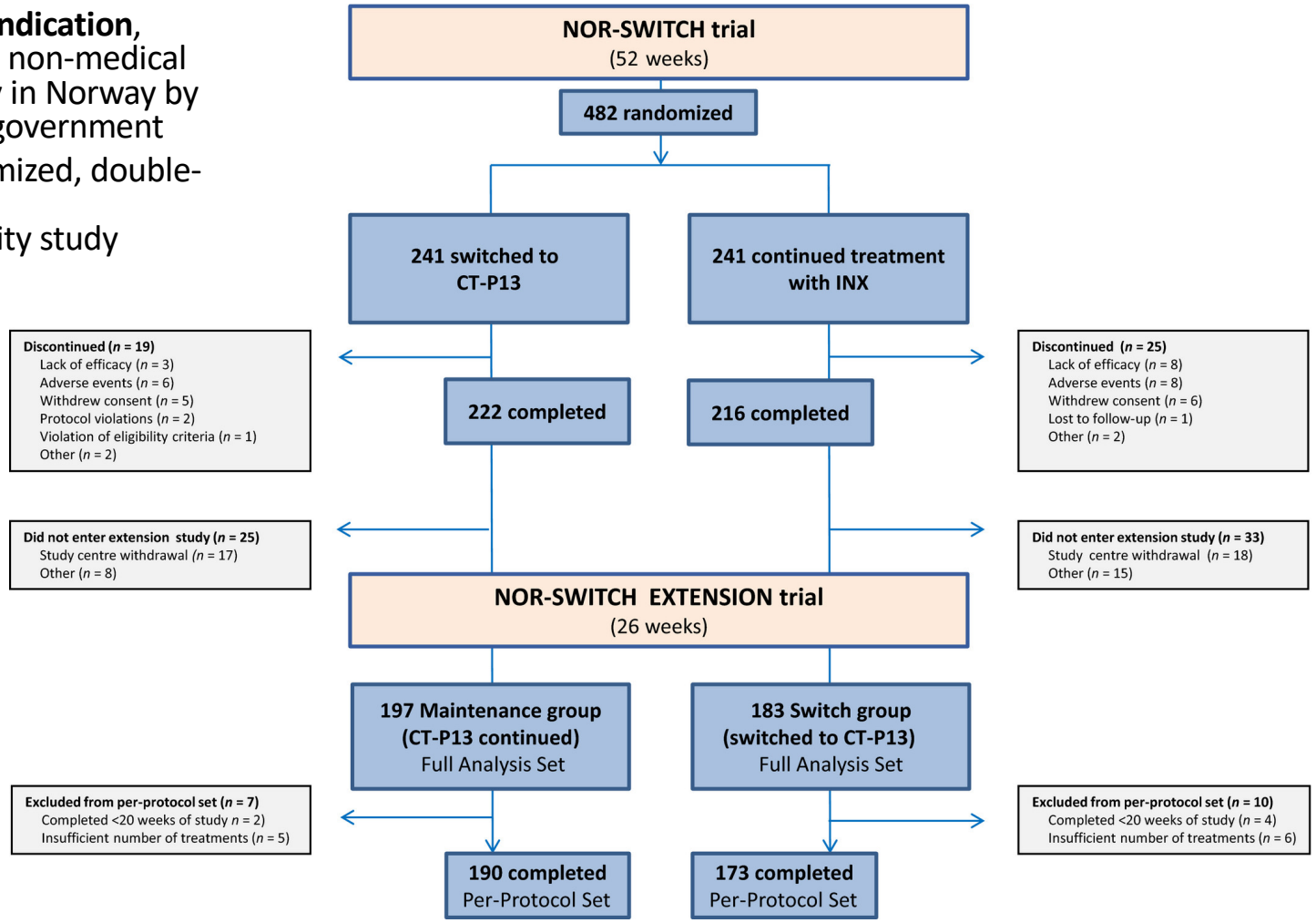
Hanauer SB, et al. DDW 2020. Abstract 1862.

Case 2: Transition / Switch

- 35 yo woman with moderate-severe Crohn's has been stable for 2 years. Doing well. In clinical remission.
- Her insurance has decided to use biosimilar infliximab and changes will be made effective 2 months from now
- She is quite concerned about switching
- Stressful situation
- You say…

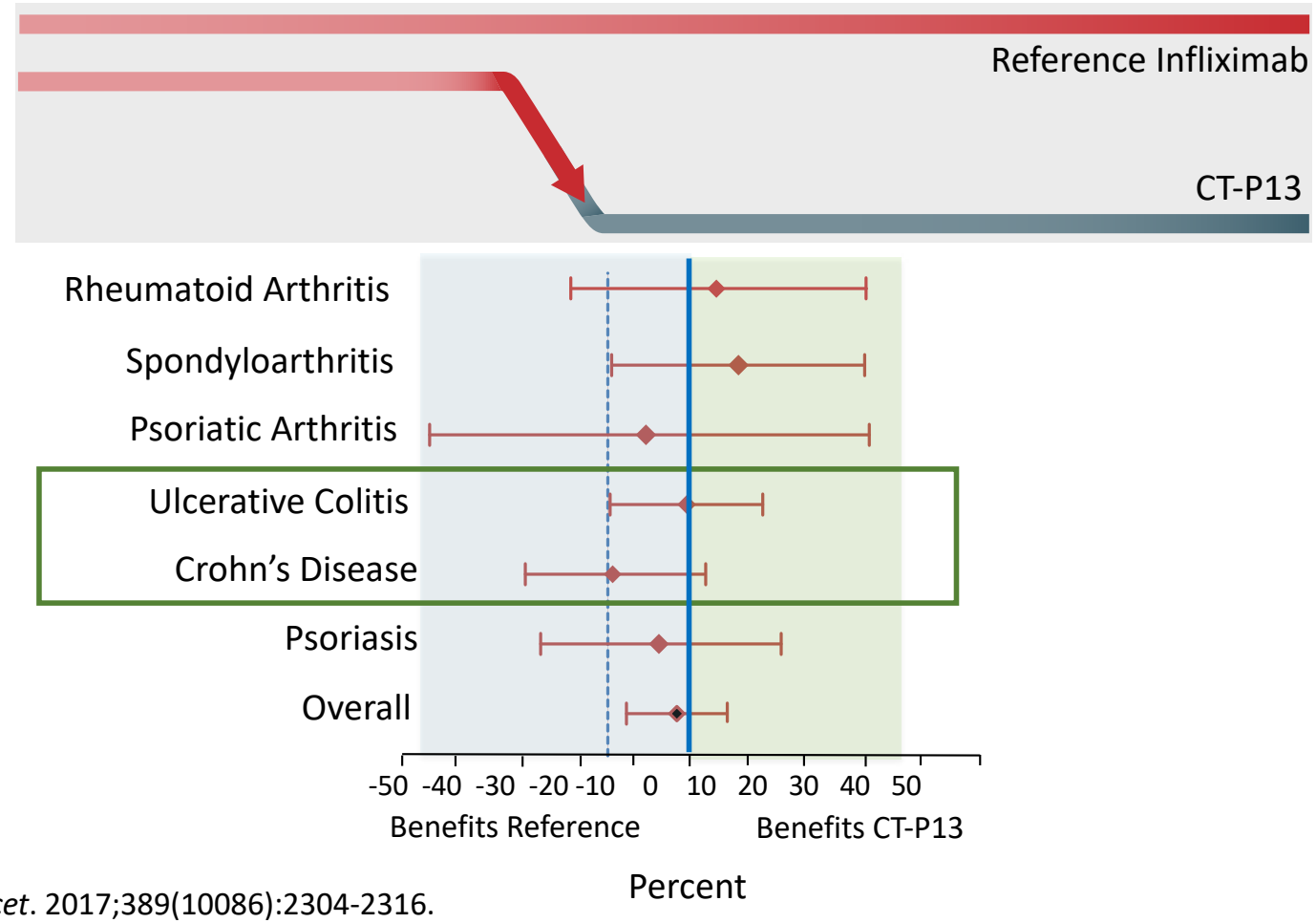
Phase IV, **multi-indication**, prospective, non-medical switch study in Norway by Norwegian government

52-week, randomized, double-blind, non-inferiority study



Journal of Internal Medicine, Volume: 285, Issue: 6, Pages: 653-669, First published: 14 February 2019, DOI: (10.1111/joim.12880)

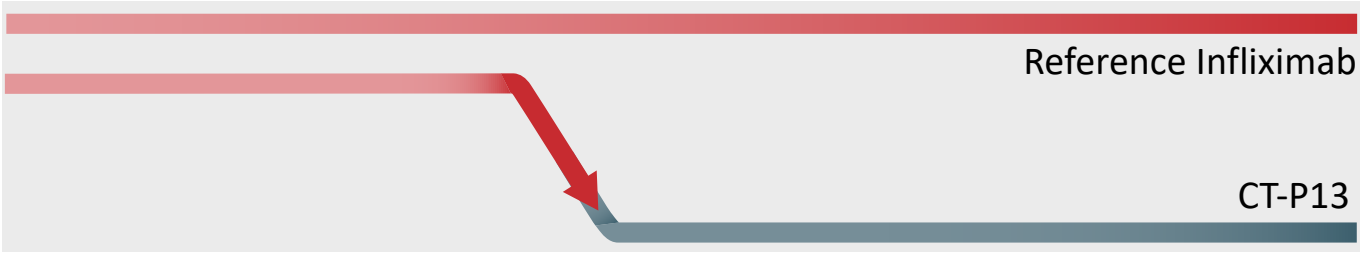
Transitioning from Reference Infliximab to CT-P13: NOR-SWITCH



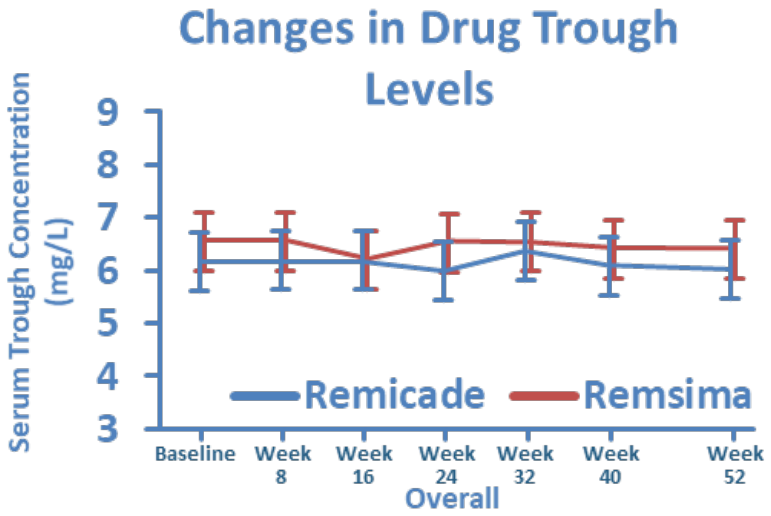
CD = Crohn's disease

Jorgensen K, et al. *Lancet*. 2017;389(10086):2304-2316.

Transitioning from Reference Infliximab to CT-P13: NOR-SWITCH



Explorative IBD Subgroup-Analysis from NOR-SWITCH



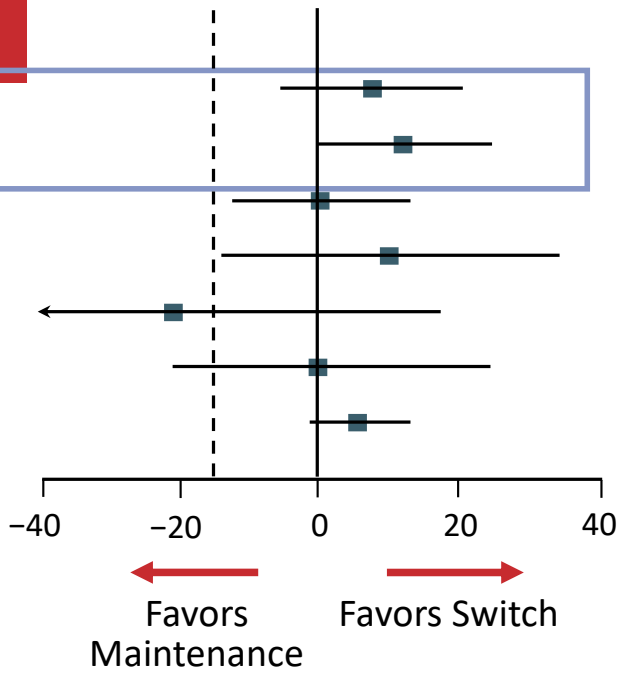
- Non-inferiority of CT-P13 compared with originator INX
- No change in TL, ADA, disease activity scores, FC, CRP or AE/SAE
- Not powered to find a difference in disease sub-types

CD = Crohn's disease

Jorgensen K, et al. *Lancet*. 2017;389(10086):2304-2316.

Long-Term Efficacy and Safety of CT-P13: NOR-SWITCH OLE

Diagnosis	Maintenance (CTP 13->CTP13) (n = 190)	Switch (IFX->CTP13) (n = 173)	Risk Difference (95% CI)
Crohn's disease	13/63 (20.6%)	8/61 (13.1%)	7.9% (−5.2 to 21)
Ulcerative colitis	6/39 (15.4%)	1/35 (2.9%)	12.4% (−0.1 to 25)
Spondyloarthritis	3/38 (7.9%)	2/28 (7.1%)	0.6% (−12.2 to 13.5)
Rheumatoid arthritis	9/26 (34.6%)	6/27 (22.2%)	10.5% (−13.6 to 34.6)
Psoriatic arthritis	1/8 (12.5%)	3/9 (33.3%)	−20.8% (−59.1 to 17.6)
Psoriasis	0/16 (0%)	0/13 (0%)	0% (−20.6 to 24.7)
Overall	32/190 (16.8%)	20/173 (11.6%)	5.9% (−1.1 to 12.9)



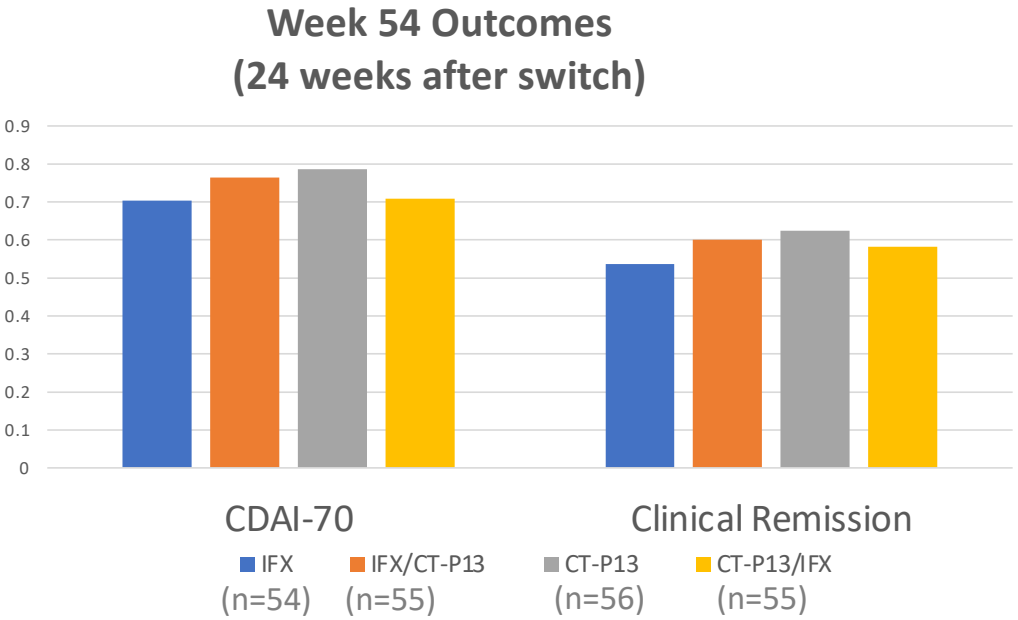
Followed for another 26 weeks

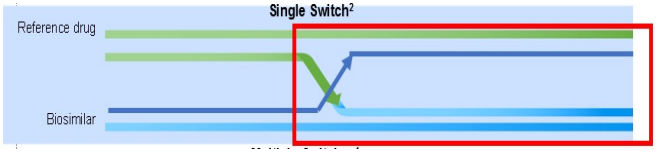
CI = confidence interval

Goll GL, et al. *J Int Med*. 2019;285(6):653-669.

Phase 3 RCT Comparing CT-P13 with Innovator IFX in Active CD-1 year maintenance and switching results

- Methods
  - At week 30, patients stayed on treatment or switched
  - CDAI-70, remission, SIBDQ, adverse events, immunogenicity at week 54 (6 months after switch)

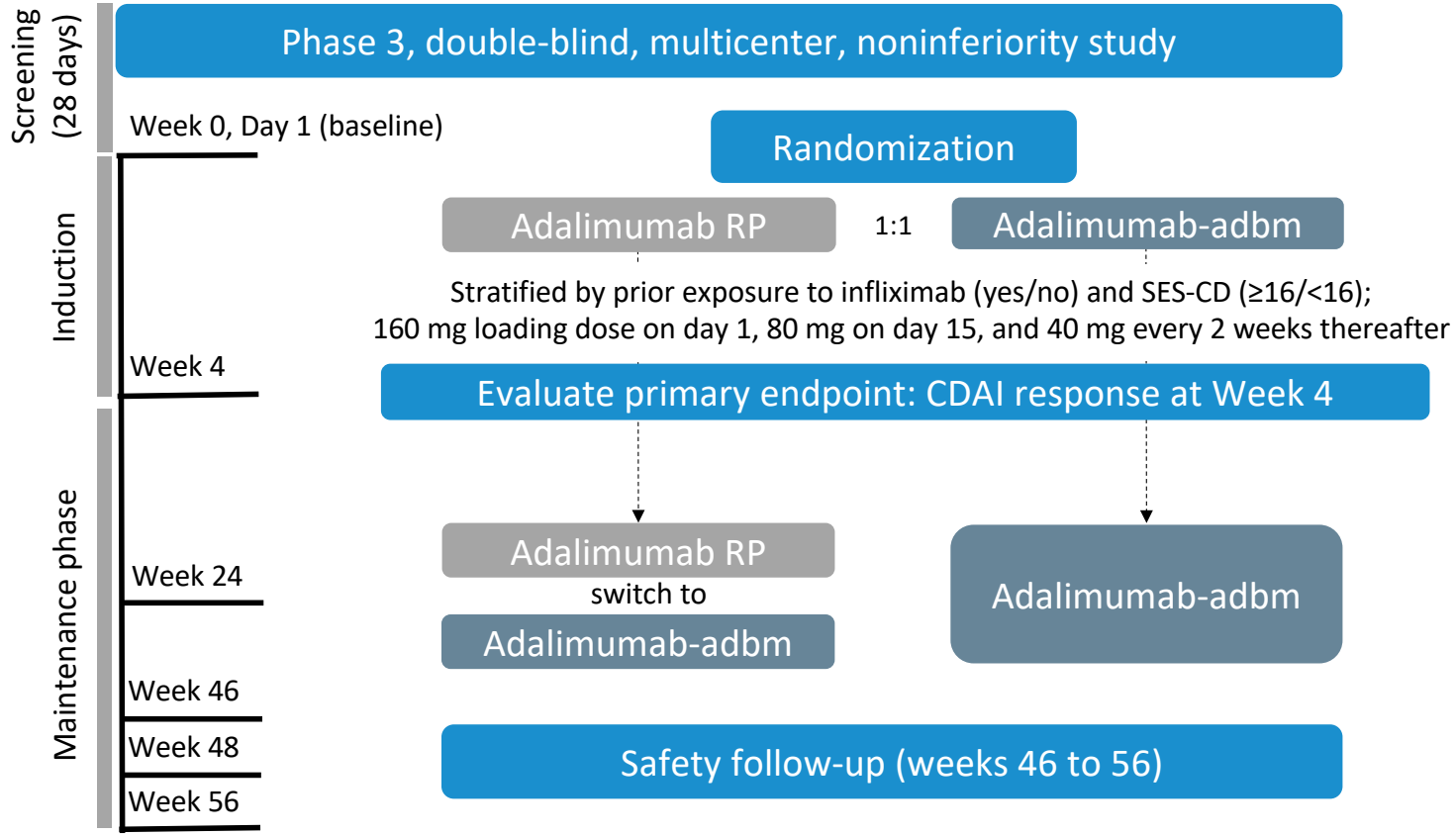




- No difference IBDQ, adverse events
- No difference infusion reactions (1.8% CT-P13→IFX; 0% CT-P13→IFX

Kim et al. Lancet 2019.

VOLTAIRE-CD study: Safety and efficacy of Adalimumab-adbm (BI 695501) compared with EU-approved Adalimumab RP



Hanauer SB, et al. DDW 2020. Abstract 1862.

VOLTAIRE-CD: Randomized controlled trial comparing reference ADA to ADA-adbm

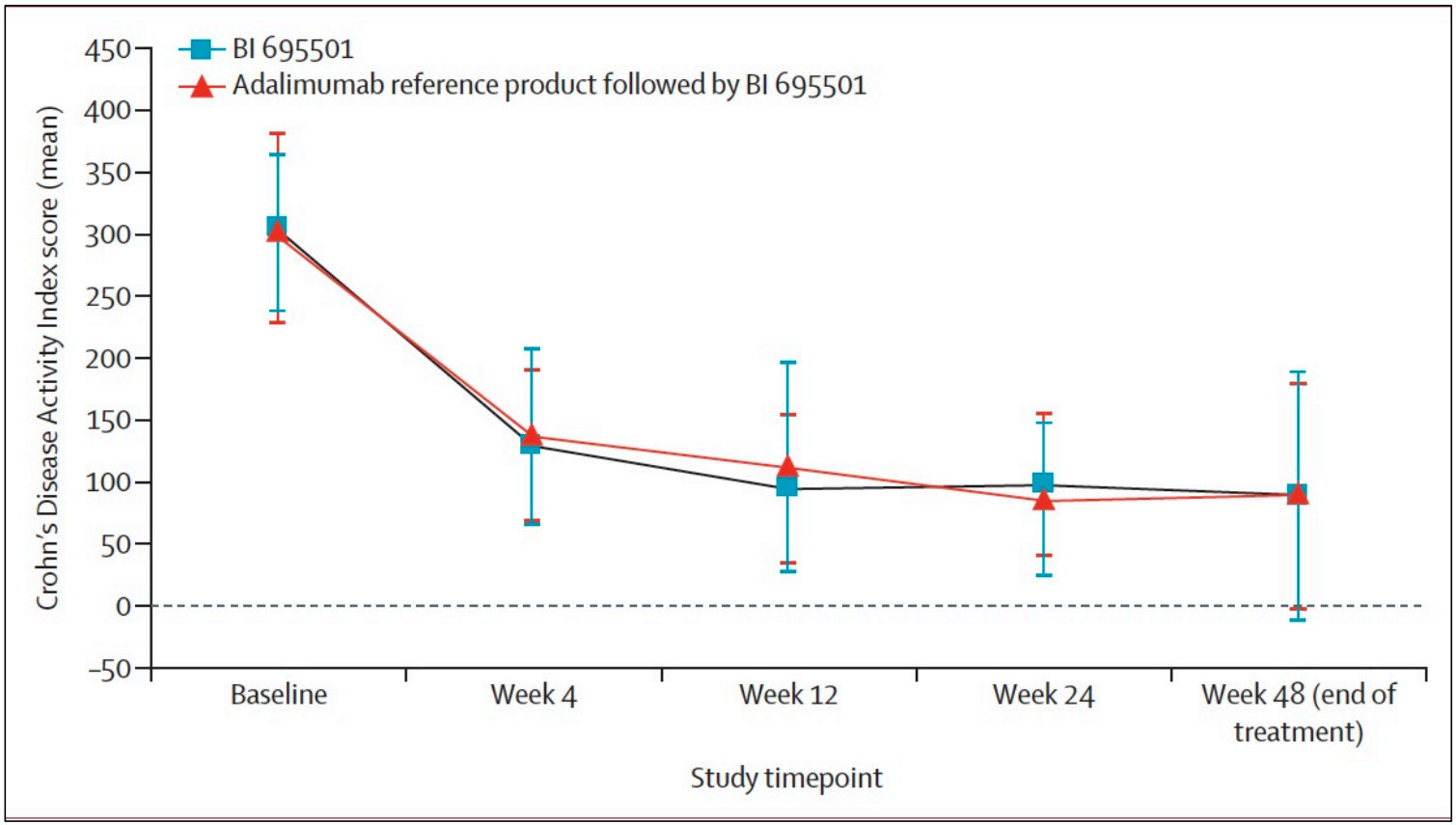
	Clinical response (decrease from baseline in CDAI score ≥70 points)		Clinical remission (CDAI score <150 points)		Decrease from baseline in CDAI score ≥100 points	
	BI 695501 (n=68)	Adalimumab reference product followed by BI 695501 (n=72)	BI 695501 (n=68)	Adalimumab reference product followed by BI 695501 (n=72)	BI 695501 (n=68)	Adalimumab reference product followed by BI 695501 (n=72)
Week 4	61 (90%)	68 (94%)	47 (69%)	44 (61%)	58 (85%)	60 (83%)
Week 12	58 (85%)	63 (88%)	50 (74%)	49 (68%)	57 (84%)	59 (82%)
Week 24	55 (81%)*	59 (82%)*	46 (68%)*	54 (75%)*	52 (76%)	59 (82%)
Week 48	55 (81%)	57 (79%)	52 (76%)	52 (72%)	53 (78%)	56 (78%)

Data shown are n (%). CDAI=Crohn's Disease Activity Index. *Secondary efficacy endpoints.

	Weeks 0–24		Weeks 24–56	
	BI 695501 (n=72)	Adalimumab reference product (n=75)	BI 695501 (n=72)	Adalimumab reference product followed by BI 695501 (n=75)
Any adverse event	45 (63%)	42 (56%)	31 (43%)	34 (45%)
Drug-related adverse event	15 (21%)	17 (23%)	10 (14%)	11 (15%)

- Hanauer et al. Lancet Gastroenterol Hepatol. 2021; 6: 816–25

VOLTAIRE-CD: Randomized controlled trial comparing reference ADA to ADA-adbm



- Hanauer et al. Lancet Gastroenterol Hepatol. 2021; 6: 816–25

Case 3: Substitution by pharmacy and multiple switches

- 28-year-old man with Crohn's disease on adalimumab
- He asks if you changed his Humira. He says he was given Cyltezo.
- You look in the EMR and see that he his currently on adalimumab-adbm
- You call the pharmacy immediately to see what happened

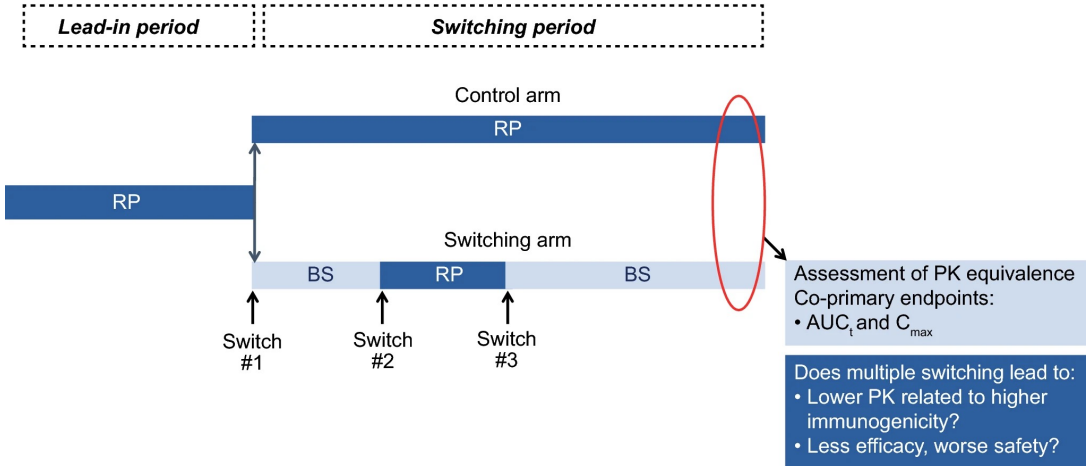
What is the difference between a biosimilar and interchangeable biosimilar

- **Policy implications**
  - Pharmacists can dispense the interchangeable version rather than the originator (or vice versa) ***without intervention of prescriber***
  - Governed by each state's pharmacy board
- **To receive FDA designation of "interchangeable"**
  - Biosimilar
  - Anticipated to produce same clinical result in any given patient
  - If administered more than once, the risk of alternating or switching is not greater than using reference alone
  - FDA guidance on switch study requirements

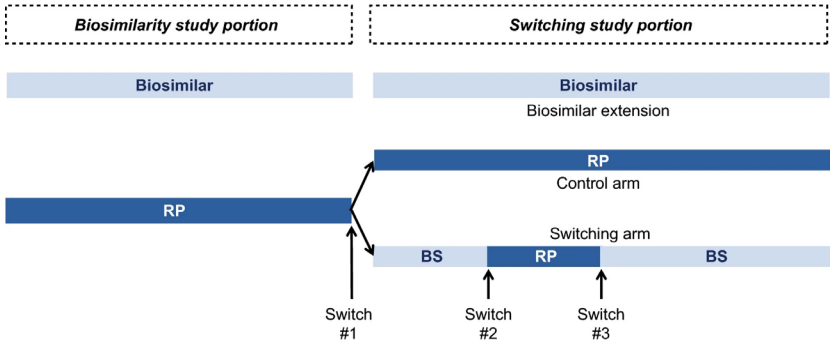
https://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/ApprovalApplications/TherapeuticBiologicApplications/Biosimilars/ucm580419.htm#diffbiochange

Interchangeability (FDA guidance)

Option 1: “Dedicated” switching study



Option 2: “Integrated” switching study



Alvarez et al Biodrugs 2020; 34: 723

Switching from originator infliximab or CT-P13 to SB2 in stable IBD pts: VA cohort study

- **Retrospective study of pts switched to SB2 after 3 mos of stable IBD**
- **SB2 continuation rates at 1 year:**
  - **82%** in patients with a double medication switch (IFX → CT-P13 → SB2)
  - **87%** in patients with a single medication switch (IFX → SB2)
- **Switching was safe in this cohort**
  - 13% of patients stopped due to either loss of response, development of antibodies, or a hypersensitivity reaction

Patient Characteristics	N	%
Patients (total)	**298**	**100**
UC	137	46%
CD	161	54%
Treatment Course		
IFX → CT-P13 → SB2	170	57%
IFX → SB2	101	34%
CT-P13 → SB2	27	9%

Similar continuation rates for patients with a **single** and **double** medication switch

Pernes T, et al. ACG 2020 Virtual. Abstract P1597.

What's the evidence for multiple switches?

- Prospective multicenter cohort study of adult IBD patients who underwent 2 switches from the originator IFX to CT-P13 to SB2 (group 1), 1 switch from CT-P13 to SB2 (group 2), and 1 switch from the originator IFX to CT-P13 (group 3)
- Patients assessed at 4 and 12 months

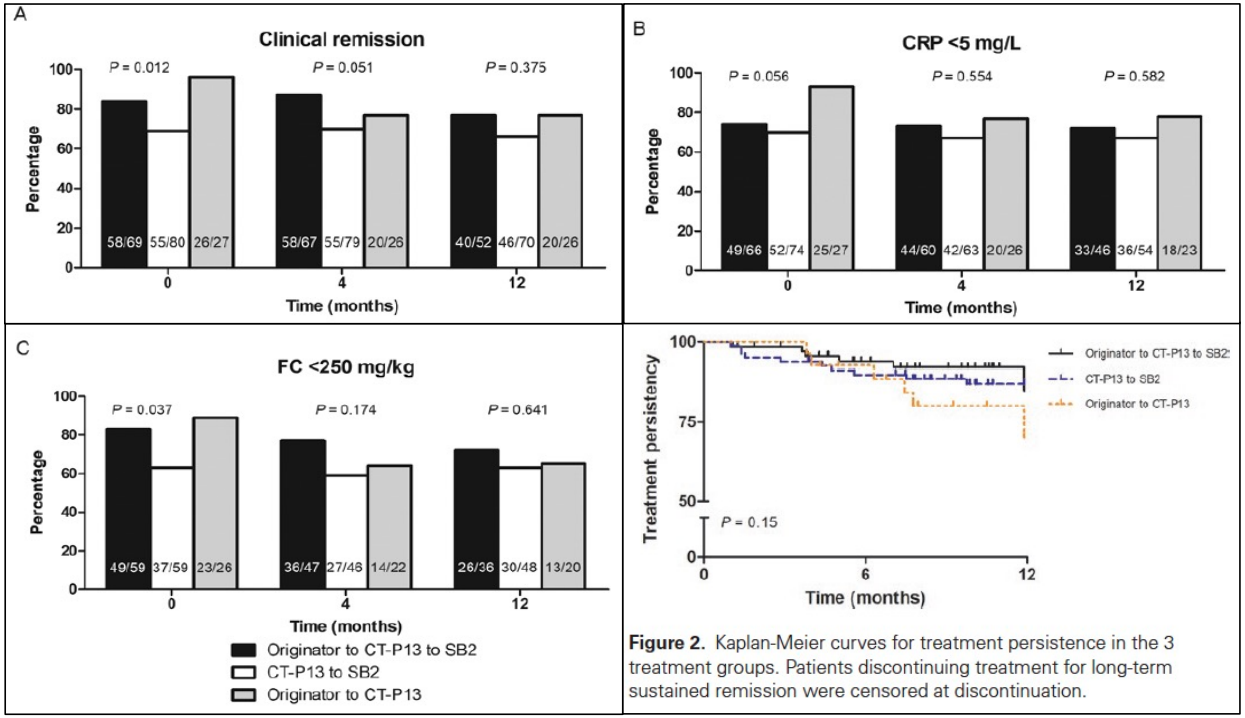


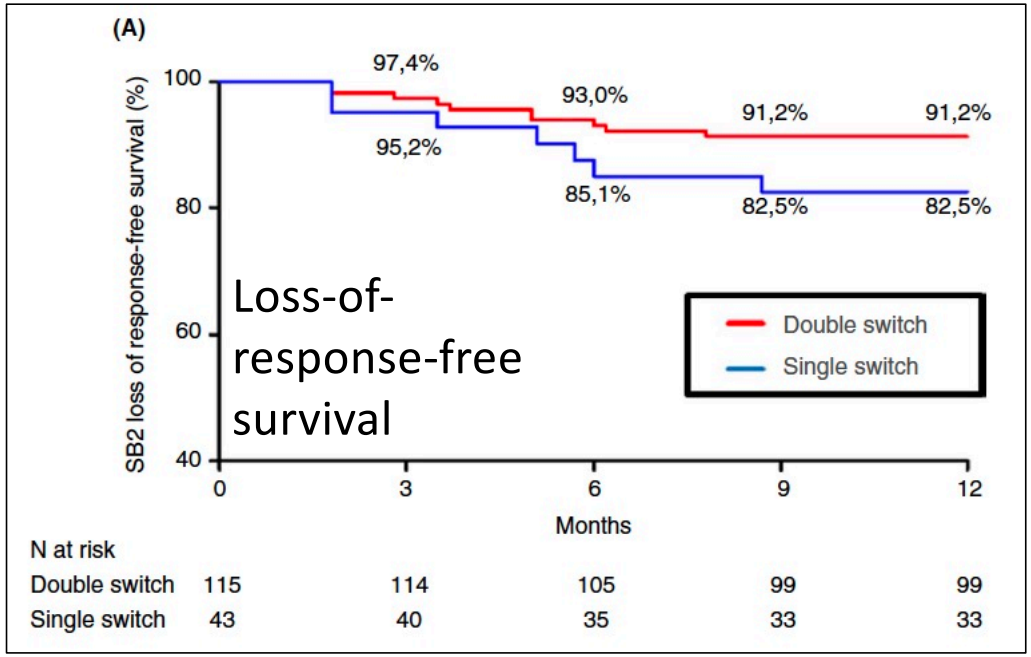
Figure 2. Kaplan-Meier curves for treatment persistence in the 3 treatment groups. Patients discontinuing treatment for long-term sustained remission were censored at discontinuation.

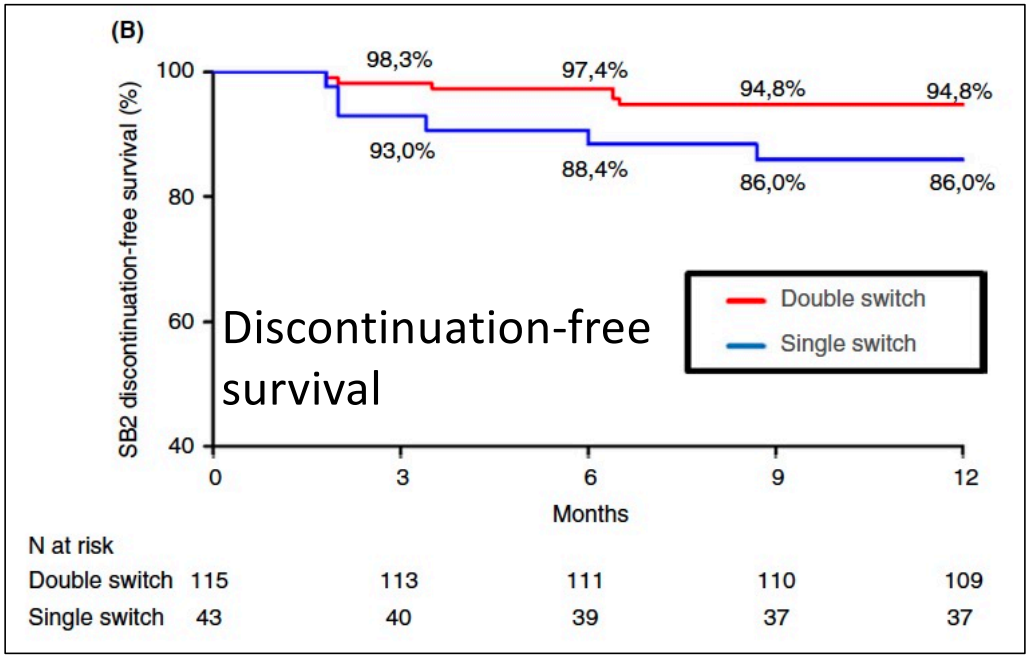
Infusion rxns 1.7% (n=3)
- **all pts with ATI**
- **all pts in group #2 (CTP13 to SB2)**

- Hanzel et al. Inflamm Bowel Dis. 2021; doi-org.mlprox.csmc.edu/10.1093/ibd/izab099

What's the evidence for multiple switches?

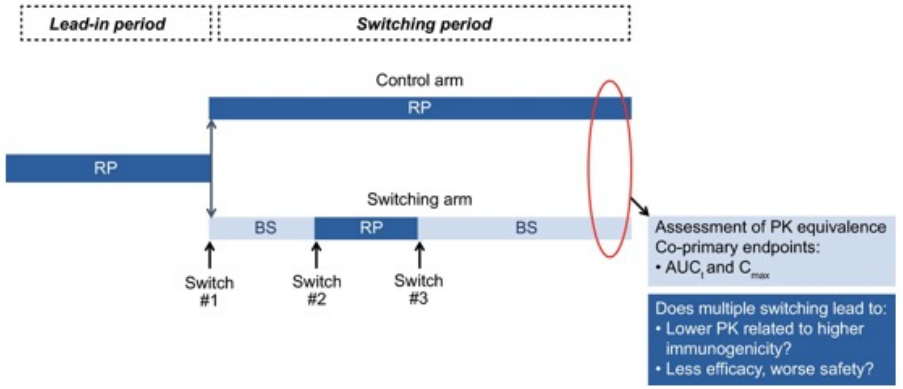
Prospective study
158 IBD pts → maintenance CTP13—>SB2; stratified based on prior originator IFX
- 94% treatment persistence; 11% loss of response to SB2
- No changes in clinical activity scores, PK parameters, or biological activity





- Trystram et al. Aliment Pharmacol Ther. 2021;53(8):887-99.

Interchangeability Trial



- Voltaire-X (NCT 03210259)
  - Adalimumab-adbm
  - Phase III interchangeability study
  - Randomized 238 patients with plaque psoriasis
  - Lead in with Humira- then randomized to 2 groups: Humira (continuously) vs switched several times between Cyltezo and Humira
  - Outcomes
    - Pharmacokinetic similarity
    - Efficacy, immunogenicity, safety

FDA NEWS RELEASE

FDA Approves Cyltezo, the First Interchangeable Biosimilar to Humira

Second Interchangeable Biosimilar Product Approved by Agency

adalimumab-adbm

For Immediate Release: October 18, 2021

Approved for indications including:

- Moderate to severe Crohn's disease
- Moderate to severe ulcerative colitis

Can be ***SUBSTITUTED*** for the originator/reference product

- The prescribe does not have to change the prescription
- The substitution may occur at the pharmacy level
  - Subject to state pharmacy laws

- https://www.fda.gov/news-events/press-announcements/fda-approves-cyltezo-first-interchangeable-biosimilar-humira

Miscellaneous topics

Biosimilars: Anti-Drug Antibodies

- **Anti-drug antibodies** have been shown to **cross-react** between the originator biologic and the biosimilar.

- Therefore, **current paradigms** for anti-drug antibodies should apply to the biosimilars.

- Of note- patients who develop neutralizing antibodies to the originator or to the biosimilar should not receive the other agent.

ww.fda.gov/Downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM291128.pdf. Published April 2015. Accessed January 26, 2016.

Crohn's and Colitis Foundation Position of Biosimilars

The Foundation is not opposed to single transitions of patients in clinical remission from an originator to a biosimilar (or vice versa) or from a biosimilar to another biosimilar by third parties (payers or pharmacies). The Foundation is opposed to multiple switches between originators and biosimilars due to the lack of data supporting the safety and efficacy of such treatment strategy in patients with IBD. The Foundation will continue to monitor emerging evidence to reassess whether multiple switches are appropriate for the IBD patient community.

When any transitions or switches occur, the patient and their providers must be informed of the exact agent the patient is receiving.

Shared-Decision Making and Transparency:

The prescribing provider should have the following rights:

- Be notified of a substitution of the originator agent with a biosimilar (or vice versa).
- Be able to prevent substitution by indicating "dispense as written."

When not otherwise specified in the prescription of these agents, patients, or their designated caregivers, as well as the treating providers, must be notified of the substitution of an originator agent with a biosimilar.

Patients who utilize biosimilars should share in the cost-savings, such as through lower co-pays or other mechanisms to lower their out of pocket costs. Switches to biosimilars should not result in more out-of-pocket expenses for patients.

Who not to switch (or delay switching)

- Patients likely to be off IFX within the next 3 months (unstable patients)
  - Actively adjusting dose, known anti-drug Ab
  - Inadequate response to IFX or in flare
  - Planned or upcoming surgery for IBD
- Other common sense/high risk scenarios (stable patients)
  - Planned or likely upcoming surgery
  - Pregnant patients
  - Likely losing insurance or imminently changing insurance

Outstanding concerns

- Appropriate to rely on extrapolation rather than IBD comparisons for biosimilars?
- Are all biosimilars similar enough to each other?
- Will we end up in de-facto multiple switches (interchangeability) based on insurance or formulary changes without appropriate rigorous blinded studies

Biosimilars for IBD 2022-Take Home Points

- Extrapolation, European clinical data in IBD, and experience in multiple countries suggest adalimumab and infliximab biosimilars have comparable safety and efficacy and appropriate for new starts and switches. Increased competition lowers prices(to be seen how much.
- Important to acknowledge that non-medical switching can be stressful
- Reasonable to delay switching in patients who are not stable, undergoing dose adjustment, or important time-limited events (surgery, pregnancy, cancer)
- CCF support single switching of stable patients under the right conditions and “rules of engagement”
  - Principles of transparency and shared decision making for switches

List of biosimilars FDA approved for adult IBD

Infliximab (originator-approved 8/1998)
1. Inflectra (infliximab-dyyb)- 4/2016
2. Renflexis (infliximab-abda)-5/2017
3. Ixifi (infliximab-qbtx)-12/2017
4. Avsola (infliximab-axxq)-12/2019

Adalimumab (originator-approved 12/2012)
1. Amjevita (adalimumab-atto)-9/2016
2. Cyltezo (adalimumab-adbm)-8/2017 ** Interchangeable (10/2021)
3. Hyrimoz (adalimumab-adaz)-8/2018
4. Hadlima (adalimumab-bwwd)-7/2019
5. Abrilada (adalimumab-afzb)-11/2019
6. Hulio (adalimumab-fkjp)-7/2020
7. Yusimry (adalimumab-aqvh)-12/2021

Biosimilar Product Information | FDA