InDex Pharmaceuticals

Welcome to

InDex Pharmaceuticals Capital Markets Day

April 25, 2018

Agenda of the Day

- **9:15** **Introduction** - Peter Zerhouni, CEO InDex Pharmaceuticals
- **9:30** **Ulcerative colitis - a debilitating disease with high unmet medical need** Professor Walter Reinisch, Medical University of Vienna
- **10:00** **Cobitolimod - a promising first in class drug candidate for the treatment of ulcerative colitis -** Professor Raja Atreya, University of Erlangen-Nürnberg, Principle Investigator in the CONDUCT study
- **10:30** **Panel discussion**
- **10:40** **Coffee break**
- **10:50** **The phase IIb study CONDUCT** - Dr Thomas Knittel, Chief Medical Officer InDex Pharmaceuticals
- **11:05** **Implementation of the CONDUCT study** - Pernilla Sandwall, Chief Operating Officer InDex Pharmaceuticals
- **11:20** **Cobitolimod's market potential** - Peter Zerhouni, CEO InDex Pharmaceuticals
- **11:45** **Q & A**
- **12:00** **Lunch and mingle**

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Introduction

Peter Zerhouni
CEO
InDex Pharmaceuticals

Forward Looking Statement

This presentation contains certain forward-looking statements reflecting the Company's current view of future events and financial and operational performance. Such forward-looking statements are associated with both known and unknown risks and circumstances outside the Company's control. All statements in this presentation other than statements of historical or current facts or circumstances are forward-looking statements. Forward-looking statements are made in several sections of the presentation and can be identified by the use of terms or expressions such as "may", "could", "should", "anticipated", "estimated", "expected", "likely", "forecasted", "plans to", "aims to", or conjugations of such terms or similar terms. The forward-looking statements only apply as of the date of this presentation. The Company has no intent or obligation to publish updated forward-looking statements or any other information contained in this presentation based on new information, future events etc. other than required by applicable law, regulation or regulatory framework.

InDex Pharmaceuticals

InDex Pharmaceuticals in Brief

- Based in Stockholm, Sweden with origins from Karolinska Institutet
  - Focus on immunological diseases with high unmet medical need
- Cobitolimod for ulcerative colitis in late stage clinical development
  - Phase IIb dose optimisation study now recruiting (CONDUCT)
  - Strategy to partner cobitolimod prior to phase III
- Broad portfolio of pre-clinical stage assets from DIMS platform
  - DNA based ImmunoModulatory Sequences
  - Potential in inflammatory diseases
- IPO in 2016 of SEK 250 million (EUR 25 million) to finance CONDUCT study
- Listed on the Nasdaq First North Stockholm (ticker INDEX)
  - SEB Venture Capital, 23%
  - Industrifonden, 21%
  - NeoMed Management/N5, 11%

Cobitolimod

Board of Directors with Proven Track Records

Dr. Wenche Rolfsen
Chairman of the Board since 2011
Chairman of BioArctic, board member of Swedish Match and Recipharm
Previous leading positions at Pharmacia and Quintiles

Dr. Uli Hacksell
Director since 2015
Board member of Uppsala University
Previous CEO of Cerecor, ACADIA and executive positions at Astra

Dr. Lennart Hansson
Director since 2011
Senior Advisor to Industrifonden
Previous CEO Arexis, senior positions at Astra

Stig Løkke Pedersen
Director since 2012
Chairman of Nuevolution and Transmedia
Previous Chief Commercial Officer at Lundbeck

Andreas Pennervall
Director since 2016
Employed by SEB Venture Capital

Management Team with Industry Experience

Peter Zerhouni, CEO
Previous CEO and Head of Business Development at Diamyd Medical

Pernilla Sandwall, COO
Previous leading positions within Clinical Operations at Merck&Co/MSD

Dr. Thomas Knittel, CMO
Gastroenterologist, previous Director Medical Marketing at Novo Nordisk

Johan Giléus, CFO
Previous partner at Deloitte

InDex Pharmaceuticals

Flexible and Cost Efficient Organisation

- Core team of 17 employees and fixed consultants
- Outsource development work to CROs/CMOs
- Scientific Advisory Board
- Expert panel of Key Opinion Leaders

Portfolio of More than 150 Different DIMS

DIMS	IFN-α	IFN-β	IFN-γ	IL-6	IL-10	TNF	Mer
DIMS-9002	-	-	-	+	++	-	24
DIMS-9012	-	-	-	++	++++	-	27
DIMS-9020	++++	+++	-	-	-	-	23
DIMS-9024	-	-	-	++	+++	-	23
DIMS-9025	++	-	-	+	++	-	23
DIMS-9049	+++++	+++++	-	+++	+++	-	17
DIMS-9050	+++++	+++	-	+	++	-	17
DIMS-9052	+++++	+++++	-	-	-	-	14
DIMS-9054	+++++	++++	-	++	+	-	15
DIMS-9055	+++++	++++	+	+++	++	-	20
DIMS-9059	+++++	++++	(+)	+++++	+++	-	12
DIMS-9061	+++	-	-	+	-	-	18
DIMS-9067	+++++	+++++	++	++++	++++	-	21
DIMS-9069	-	-	-	+++	++++	-	26
DIMS-9074	-	-	-	+++	+++++	-	19
DIMS-9075	-	-	-	-	++	-	20
DIMS-9078	++	-	-	+	++	-	14
DIMS-9097	-	-	-	+	++	-	18

+++++	high
+++	mid
+	low
(+)	very low
-	none

InDex has designed a broad portfolio of new TLR9 agonists with different characteristics with potential in inflammatory disease. Concept will be validated by cobitolimod

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InDex Aims to Broaden the Development Pipeline

- Pre-clinical development of additional DIMS substances, in order to diversify the clinical pipeline
- Inflammatory diseases outside of ulcerative colitis and inflammatory bowel disease
- Leverage historical investments in generating DIMS portfolio
- Leverage pharmaceutical development experience, expertise and knowledge gained from the development of cobitolimod
- VINNOVA grant of SEK 1.8 million for the development, until end of 2018

Financial Overview 2017

- Revenues amounted to SEK 0.1 (0.4) million
- Operating result amounted to SEK –73.3 (–39.5) million
- Cash flow from operating activities amounted to SEK –68.2 (–31.9) million
- Cash and cash equivalents at the end of the period amounted to SEK 125.1 (193.2) million

All comparative amounts in brackets refer to the outcome of InDex's overall activities during the corresponding period 2016

InDex Strengths

BLOCKBUSTER POTENTIAL

- Ulcerative Colitis (UC) is a debilitating disease with high unmet medical need
- Annual sales of biologics in UC amounts to >USD 5 billion
- Cobitolimod has high market potential as a safer and more efficacious alternative to biologics with a novel mechanism of action

LATE STAGE CLINICAL DEVELOPMENT

- Extensive clinical experience with excellent safety profile
- Main results from phase IIb dose optimisation study expected in Q4 2018
- Potential to provide substantially higher efficacy than current industry pipeline
- Attractive asset for potential partners
- Will validate broad portfolio of other DIMS assets with potential in inflammation

EXPERIENCED BOARD & MANAGEMENT

- Board and management with extensive experience from the pharmaceutical industry and listed companies

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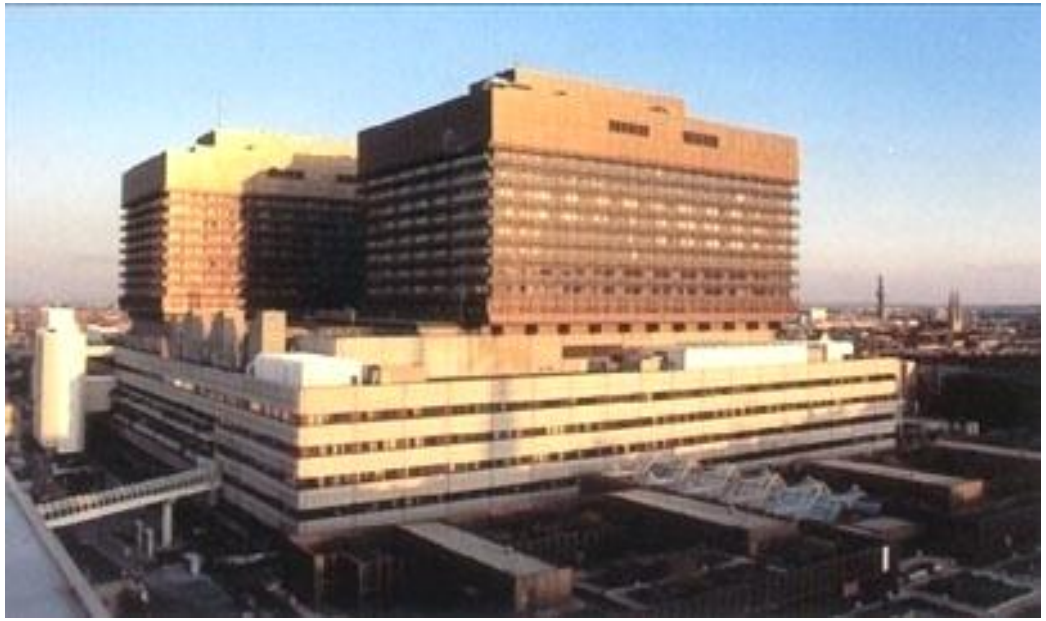
Ulcerative colitis - A Debilitating Disease with High Unmet Medical Need



Walter Reinisch

Univ-Klinik für Innere Medizin III

Abt. Gastroenterologie & Hepatologie

AKH Wien, MUW

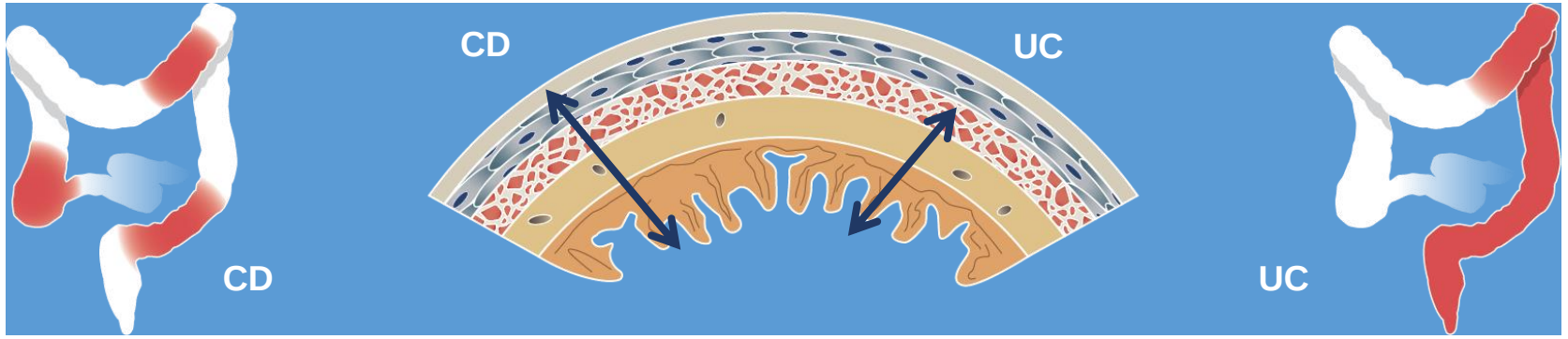
Crohn’s disease and ulcerative colitis are two different diseases

Crohn’s disease

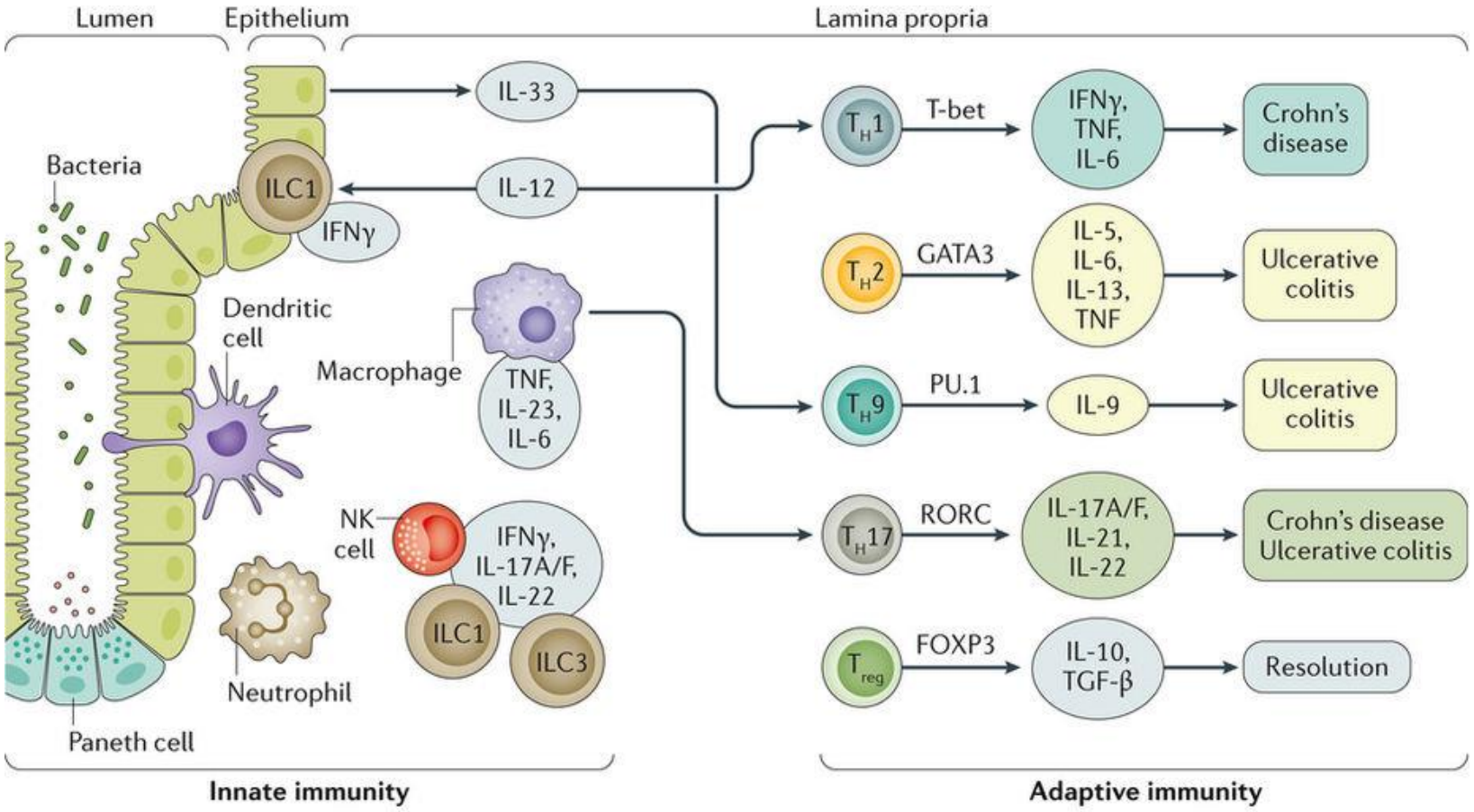
- Patchy inflammation
- Entire gastrointestinal (GI)
- All layers of GI wall (fistulas and strictures)
- $T_{(H)}1$ response
- Smoking: risk factor
- Risk of cancer
- Extra-intestinal manifestations

Ulcerative colitis

- Continuous inflammation
- Colon and rectum only
- Mucosal and sub-mucosal layers
- $T_{(H)}2$ response
- Smoking: protective (nicotine)
- Risk of cancer
- Extra-intestinal manifestations

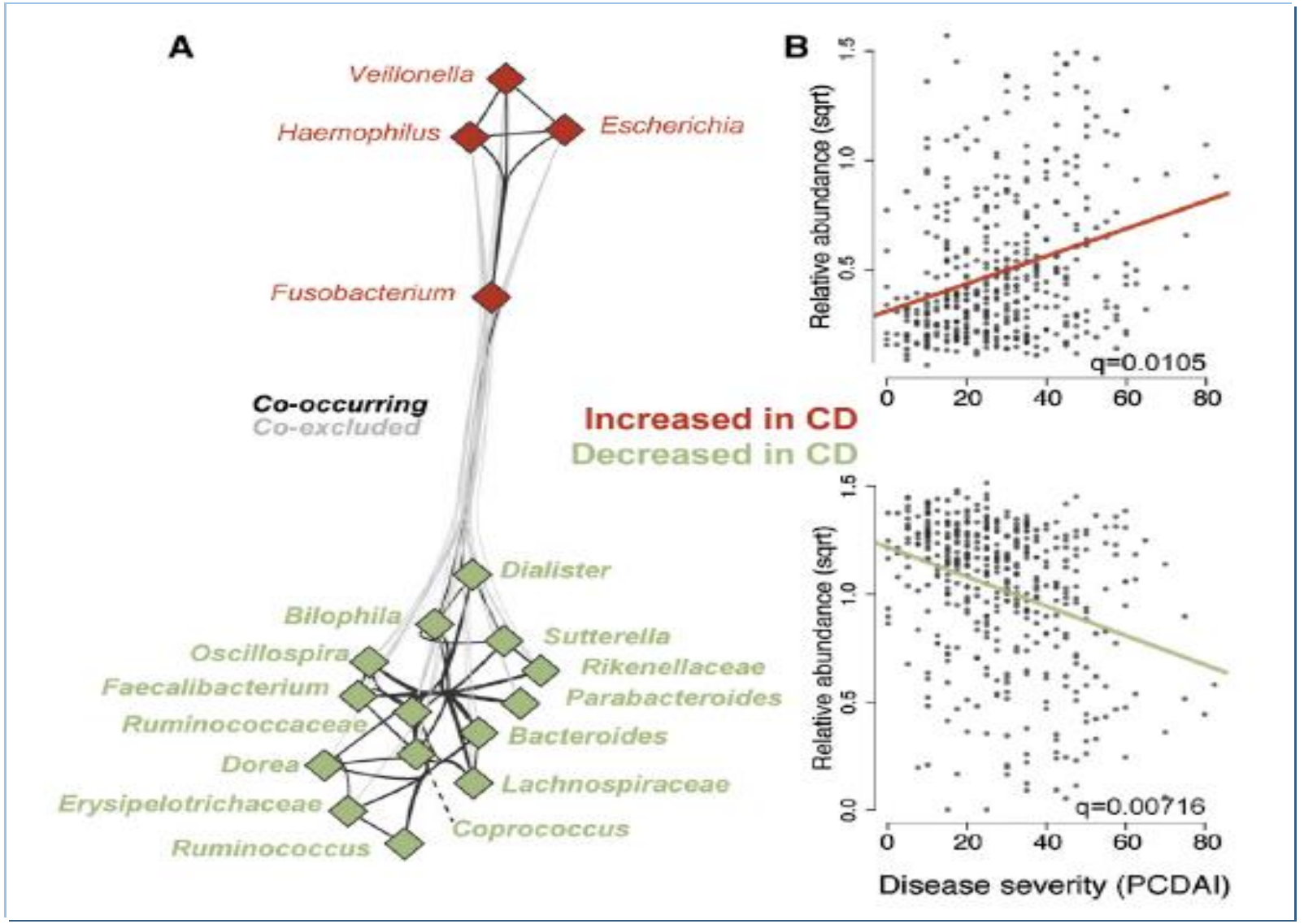


Proinflammatory immune cells and their crosstalk in patients with IBD



Neurath MF et al. Nature Reviews Gastroenterol Hepatol 2017

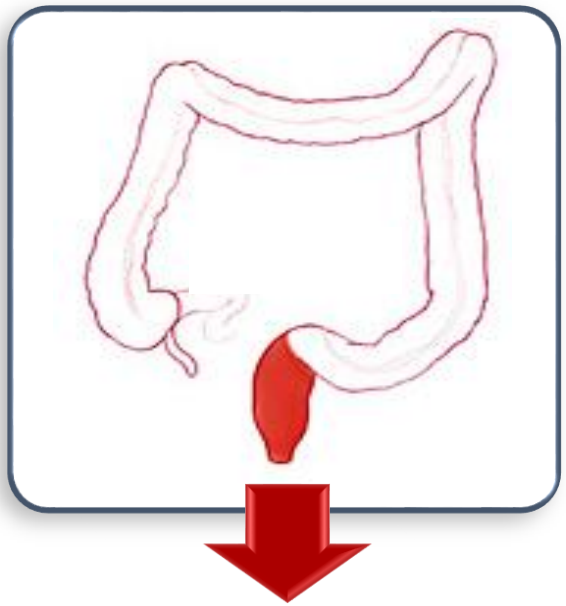
Imbalance of Intestinal Flora in IBD



Gevers et al. Cell Host & Microbe 2014

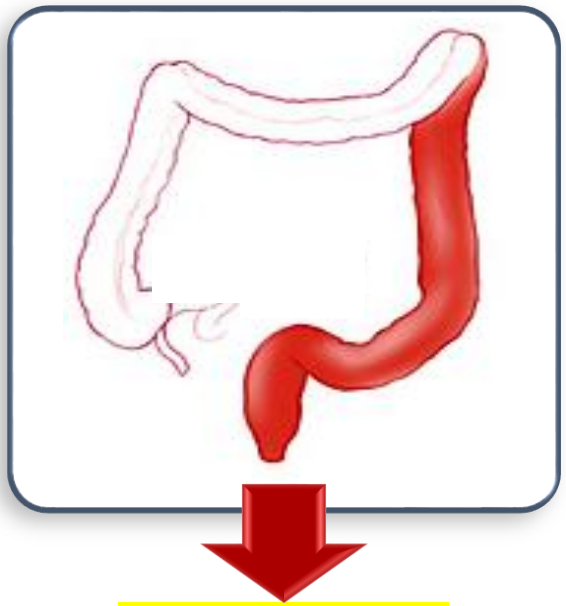
UC: disease extension

Proctitis



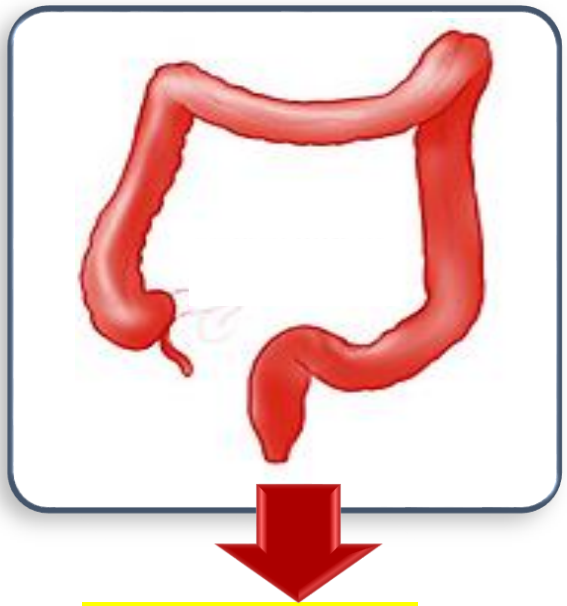
- Tenesmus, urgency
- Faecal incontinence
- Passage of mucus and fresh blood

Left-sided colitis



- Bloody diarrhoea
- Sometimes proximal constipation

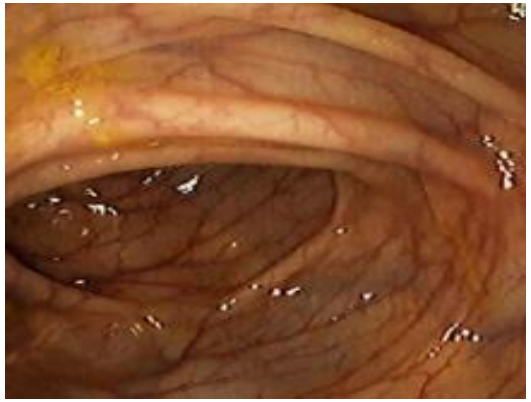
Pancolitis



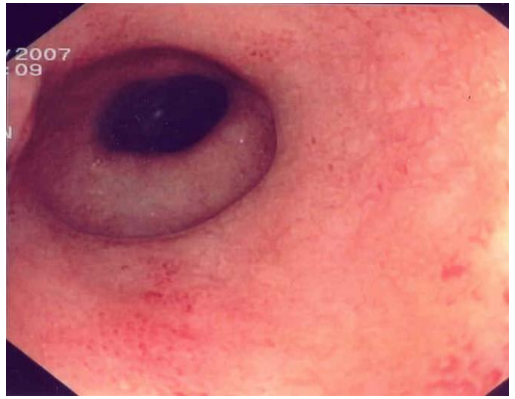
- Bloody Diarrhoea
- Weight loss
- Fever
- Clinically significant blood loss
- Abdominal pain

Dignass A, *et al. J Crohns Colitis* 2012;6:965–990;
http://www.hopkins-gi.org/GDL_disease.aspx?GDL_Disease_ID=2A4995B2-DFA5-4954-B770-F1F5BAFED033&GDL_DC_ID=D03119D7-57A3-4890-A717-CF1E7426C8BA

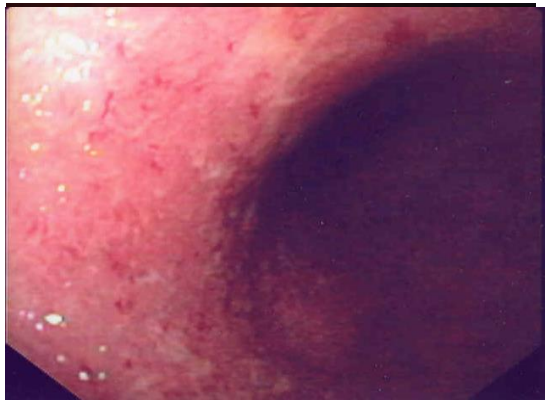
Mayo Classification of Ulcerative Colitis by Endoscopic Findings



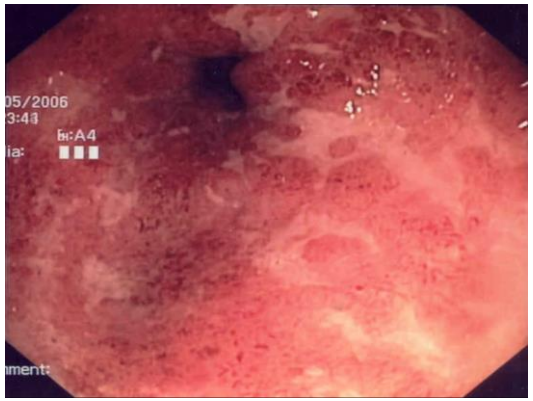
Remission



Mild
erythema, decreased vascular pattern



Moderate
marked erythema, absent vascular pattern, friability, erosions



Severe
spontaneous bleeding, ulceration

UC as a disabling disease: loss of function

IBD Disability Index

ANSWERS: **1 = None, 2 = Mild; 3 = Moderate; 4 = Severe; 5 = Extreme or cannot do**	**1**	**2**	**3**	**4**	**5**
Regulating defecation					
8. Overall in the last week, how much difficulty did you have coordinating and managing defecation including choosing and getting to an appropriate place for defecation and cleaning oneself after defecation? (d5301)					

Incontinence
Tenesmus
Urgency

→ Restrictive for Social and Work Life

Peyrin-Biroulet L, *et al. Gut* 2012;61:241–7

The Clinical Heterogeneity of Ulcerative Colitis

Disease pattern:

- continuous – discontinuous
- rectum sparing
- cecal patch
- backwash ileitis
- duodenal involvement
- primary sclerosing cholangitis
- etc.

Disease extent

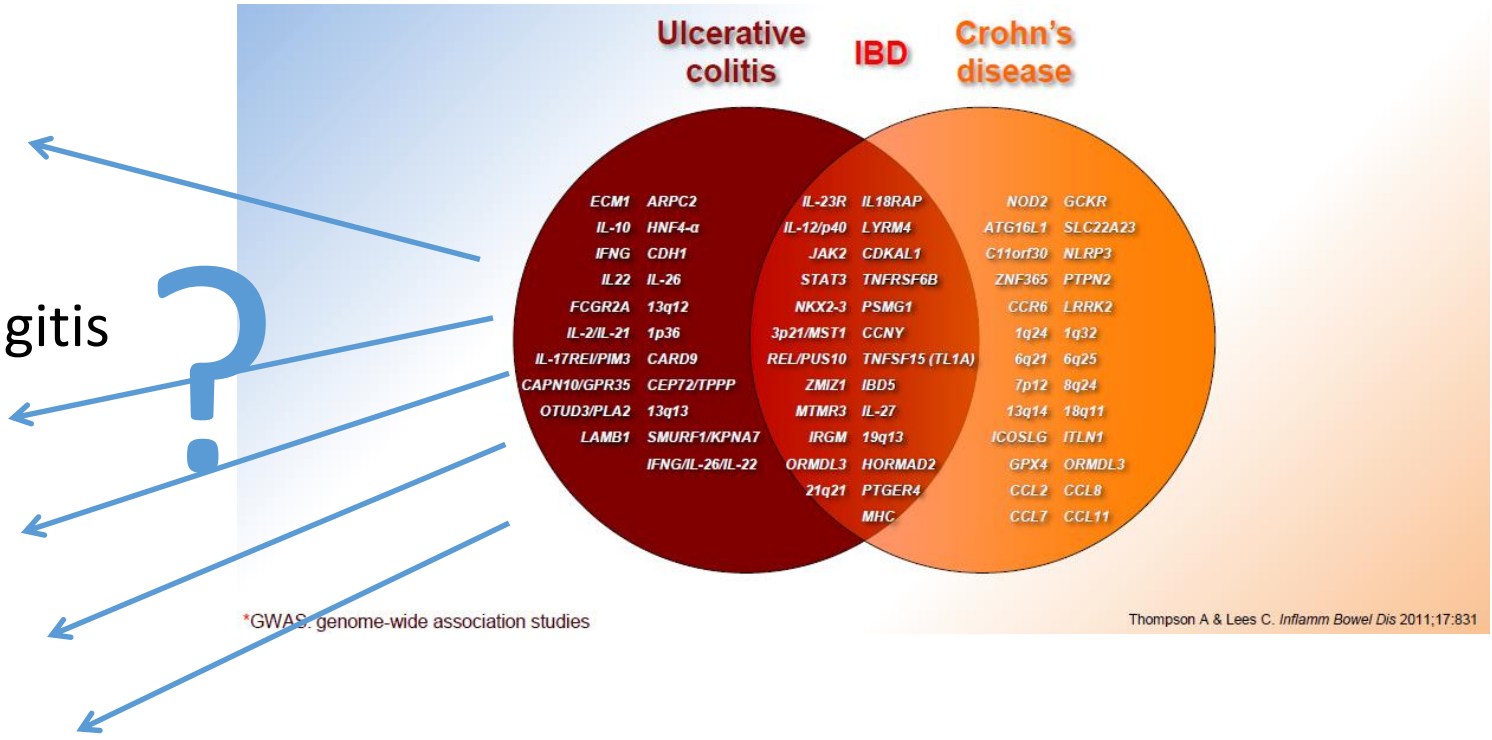
Disease severity

Age at onset

Disease course

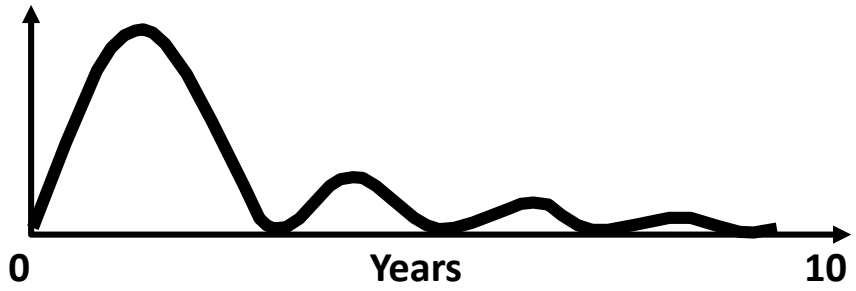
Serology

Response to treatment



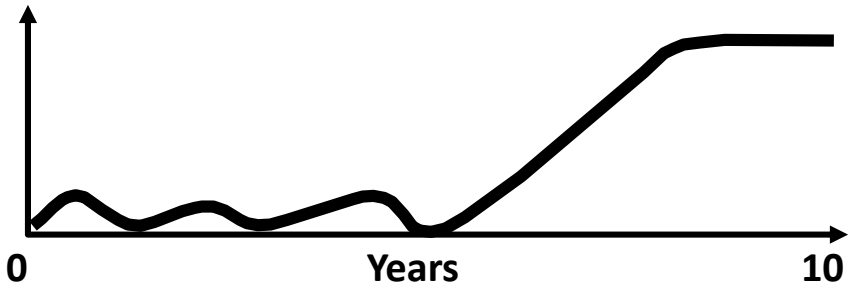
Natural Course of Ulcerative Colitis

55% (n=208)



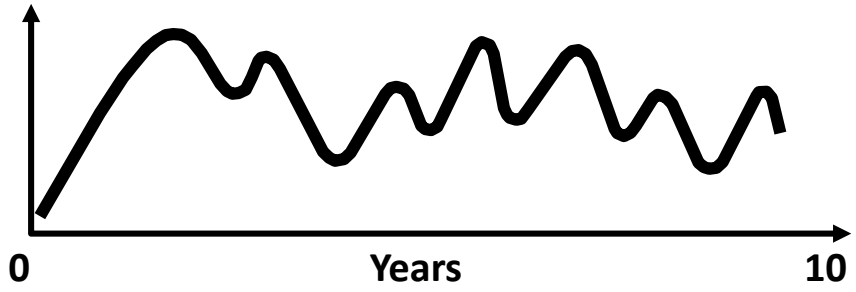
Curve 1: Remission or mild severity of intestinal symptoms after initial high activity

1% (n=4)



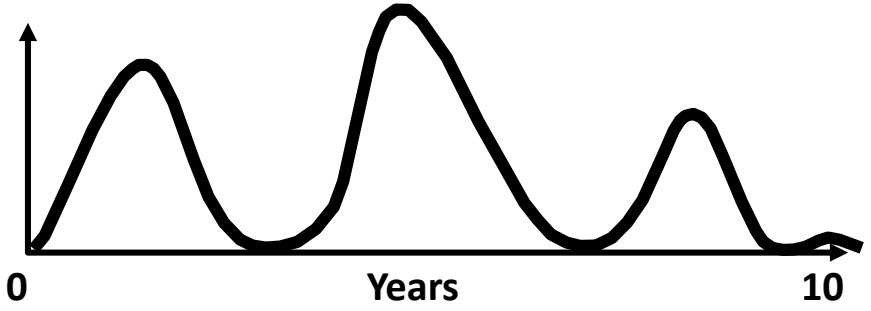
Curve 2: Increase in the severity of intestinal symptoms after initial low activity

6% (n=22)



Curve 3: Chronic continuous symptoms

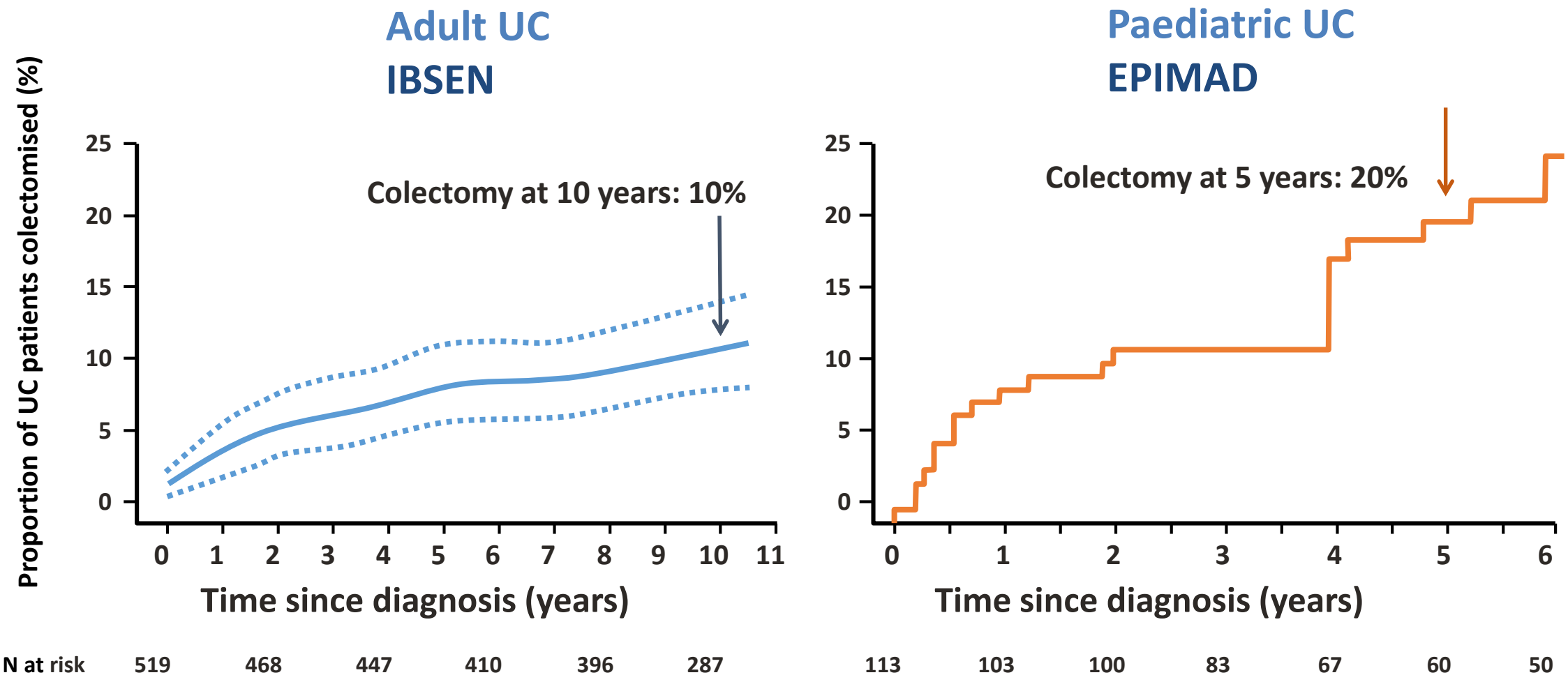
37% (n=139)



Curve 4: Chronic intermittent symptoms

Solberg IC, et al. *Scan J Gastroenterol* 2009;44(4):431–440

Ulcerative Colitis: cumulative rate of colectomy



Solberg IC, *et al. Scand J Gastroenterol* 2009;44:431–40

Gower-Rousseau C, *et al. Am J Gastroenterol* 2009;104:2080–8

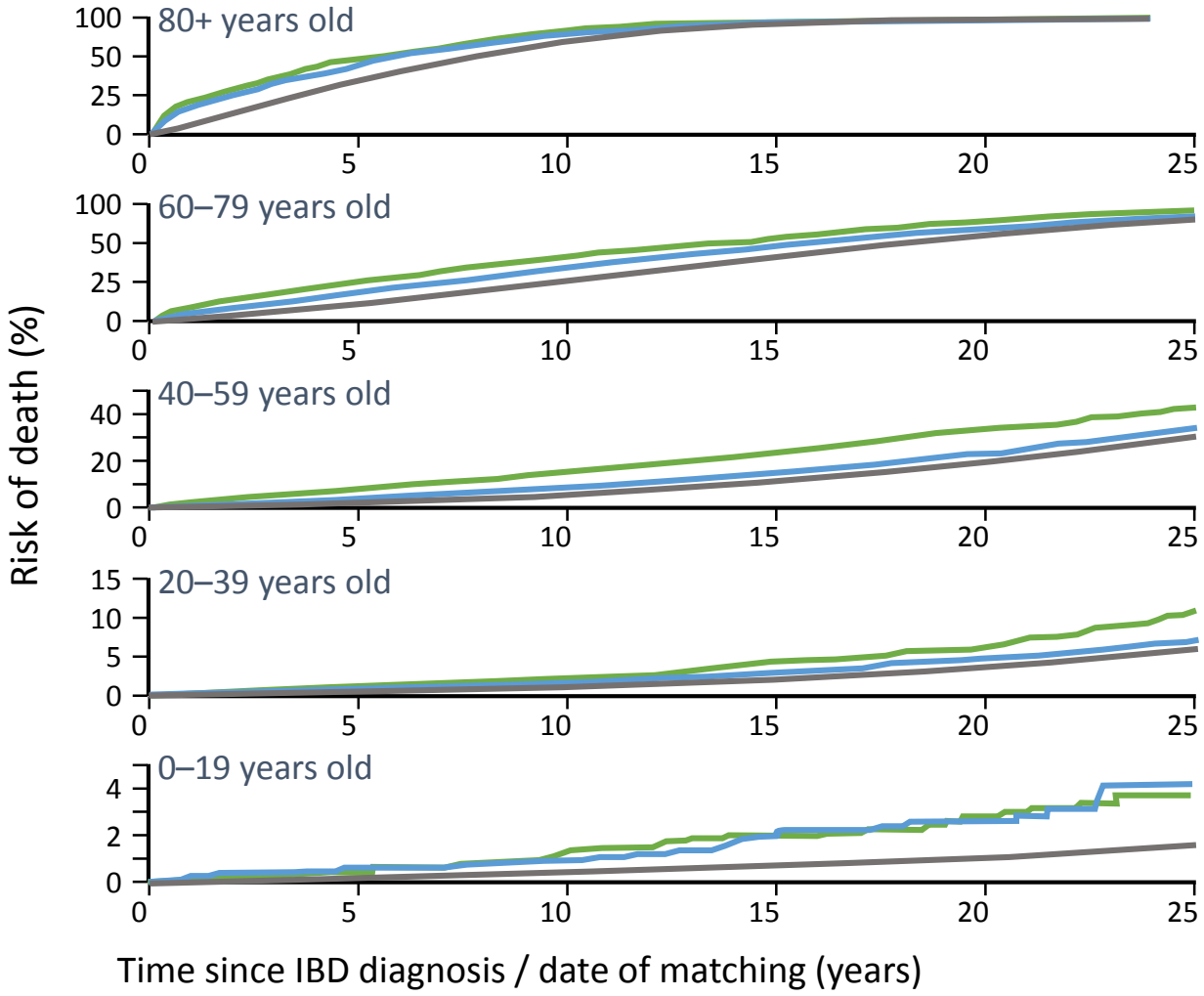
Colectomy in UC: potential complications

- Mortality (<0.5%)[1]
- Small-bowel obstruction[2]
- 5–10 stools / 24 hr[3]
- Faecal incontinence[3]
- Pouchitis (46%)[1,2]
- Pouch fistulae[2]
- Impotence (1.2%)[4]
- Reduced female fertility (54–98%)[2,5–7]

1. Ferrante M, *et al. Inflamm Bowel Dis* 2008;14:20–8
2. Ochsenkühn T, *et al. Gut* 2011;60:1294–9
3. Pemberton JH, *et al. Ann Surg* 1987;206:504–13
4. Krausz MM, *et al. Isr Med Assoc J* 2005;7:23–7
5. Ørding Olsen K, *et al. Gastroenterology* 2002;122:15–9
6. Johnson P, *et al. Dis Colon Rectum* 2004;47:1119–26
7. Gorgun E, *et al. Surgery* 2004;136:795–803

Estimates of mortality in IBD

Risk of dying according to age at, and time since, IBD diagnosis (Denmark 1982–2010) 36,080 UC and 15,361 CD vs 2,858,096 matched controls



- Mortality increased in the first year after diagnosis
- Intermediate and long-term mortality increased by 10% in UC and 50% in CD
- Mortality from UC decreased from 1982–2010, because of reduced mortalities from GI disorders and colorectal cancer
- Mortality from CD did not change

Jess T, *et al. Clin Gastroenterol Hepatol* 2013;11:43–8

Treatment Targets in Ulcerative Colitis

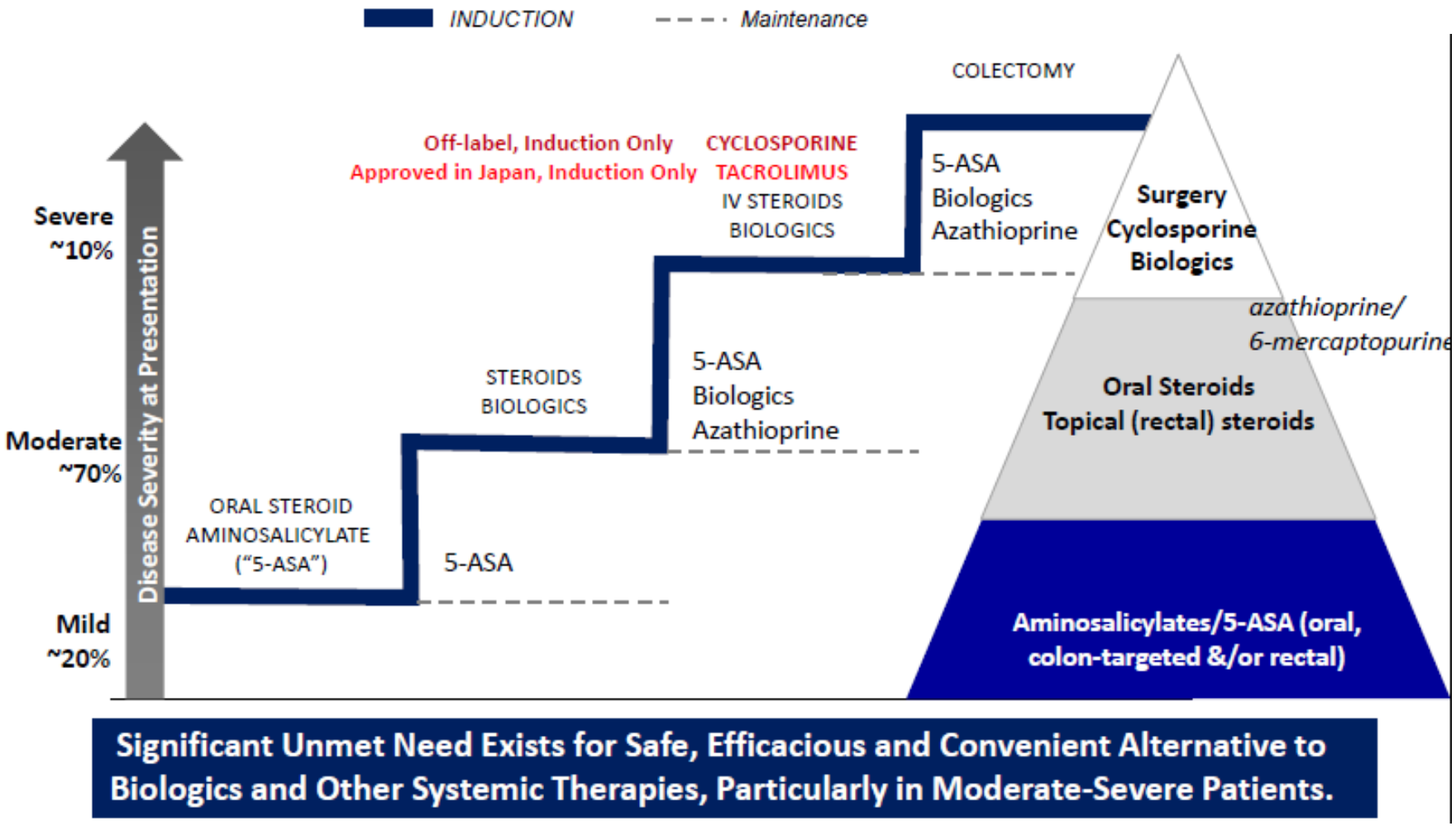
Absence of ulceration

AND

Resolution of Patient Reported Outcomes (PROs)

Clinical Endpoints: Lost in Translation

Current Treatment Algorithm of Ulcerative Colitis



Biologics:
Anti-TNFα
(IFX, ADA, GLM)
Anti-integrin
(VDZ)

Long Term Remission Rates Suboptimal in Ulcerative Colitis

- One year clinical remission: 16% to 35% in treat-through studies (ADA, IFX) and 23% to 42% in re-randomization studies (GLM, VDZ)
- Steroid free and long-term remission rates are lower
- The rates of endoscopic healing are lower
- Lower remission rates in patients previously exposed to biologics
- New endpoints, e.g. histologic remission or biomarker remission are even more difficult to achieve
- Safety issues with approved biologics and immunomodulators

Rutgeerts P *et al. New Engl J Med* 2005;353:2462-76, Sandborn WJ *et al. Gastroenterol*ogy 2012;142:257–66;
Feagan B *et al. N Eng J Med* 2013;369:699–710; Sandborn W *et al. Gastroenterol*ogy 2014;146:85–95.

How to Optimize Treatment Outcomes

- Clinically-driven dose optimization
- Tight monitoring of patient reported outcomes
- Tight monitoring of inflammatory biomarkers (CRP, fCP)
- Therapeutic drug monitoring (TDM)
- Combination therapy
- Precision medicine
- Endpoint validation

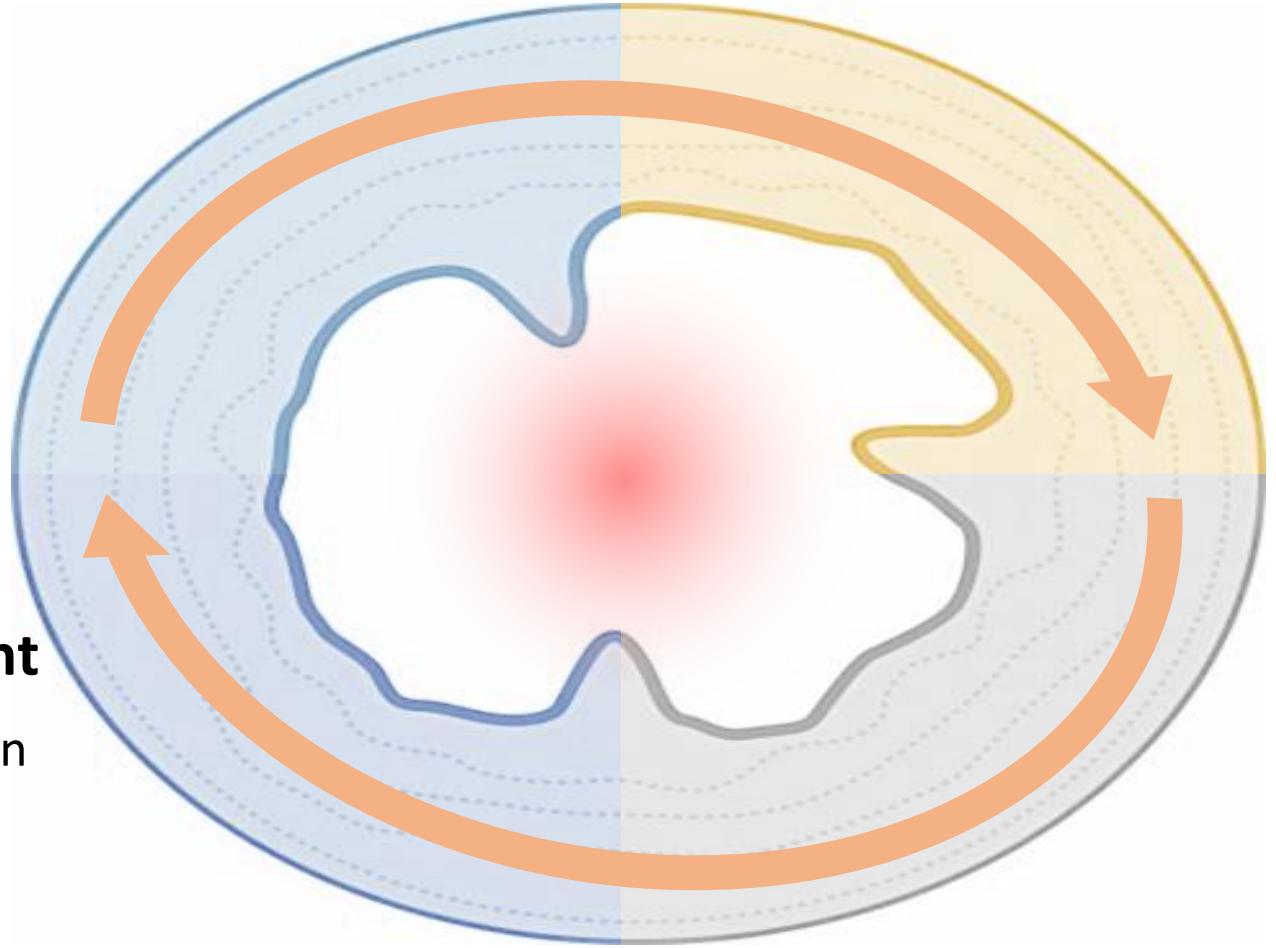
Modes of Action in UC

Anti-Inflammation

- JAK inhibitors
- PDE4 inhibitors
- TLR9 agonist

Barrier enhancement

- Microbiota Modulation
- Phosphatidylcholine



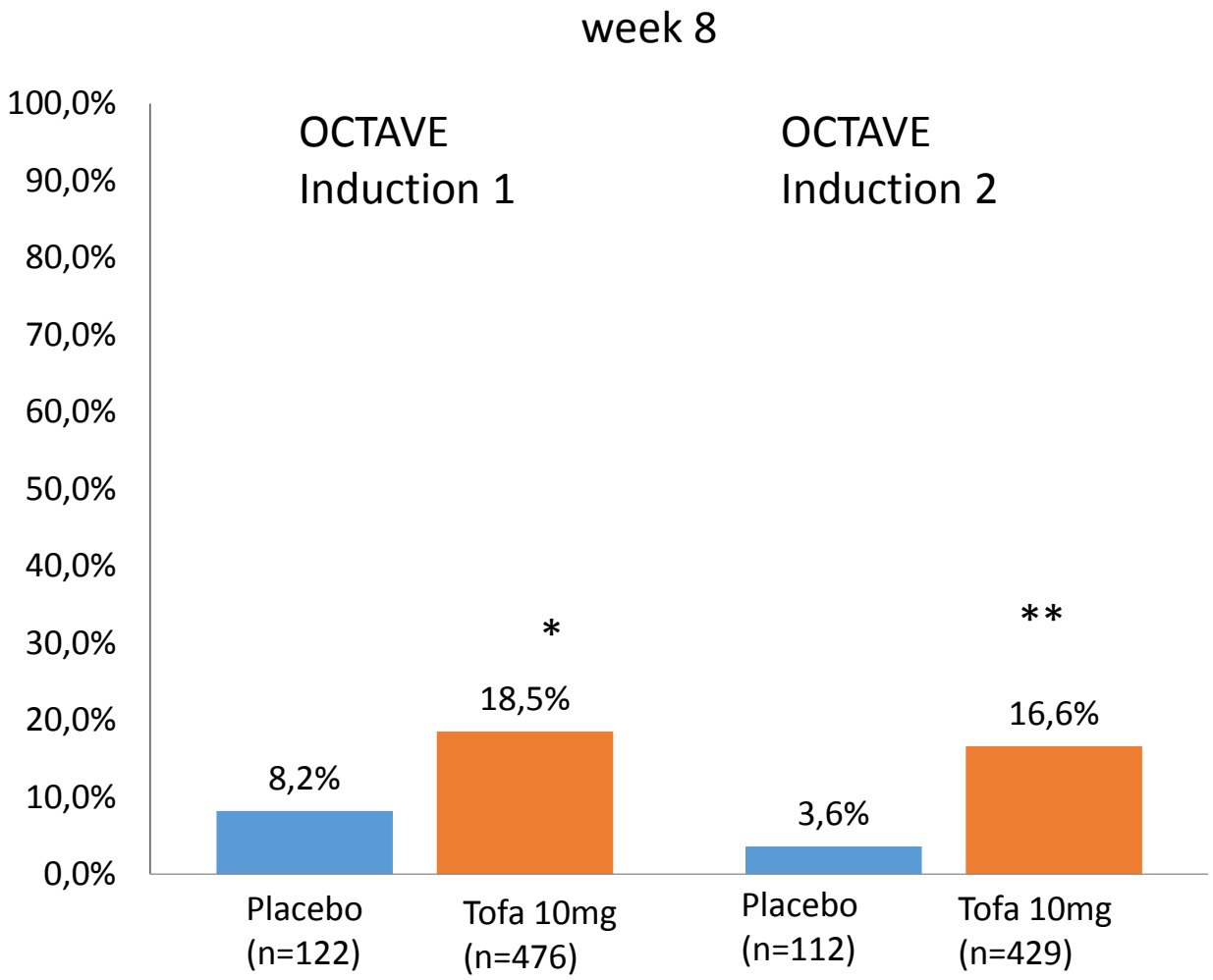
Cytokines

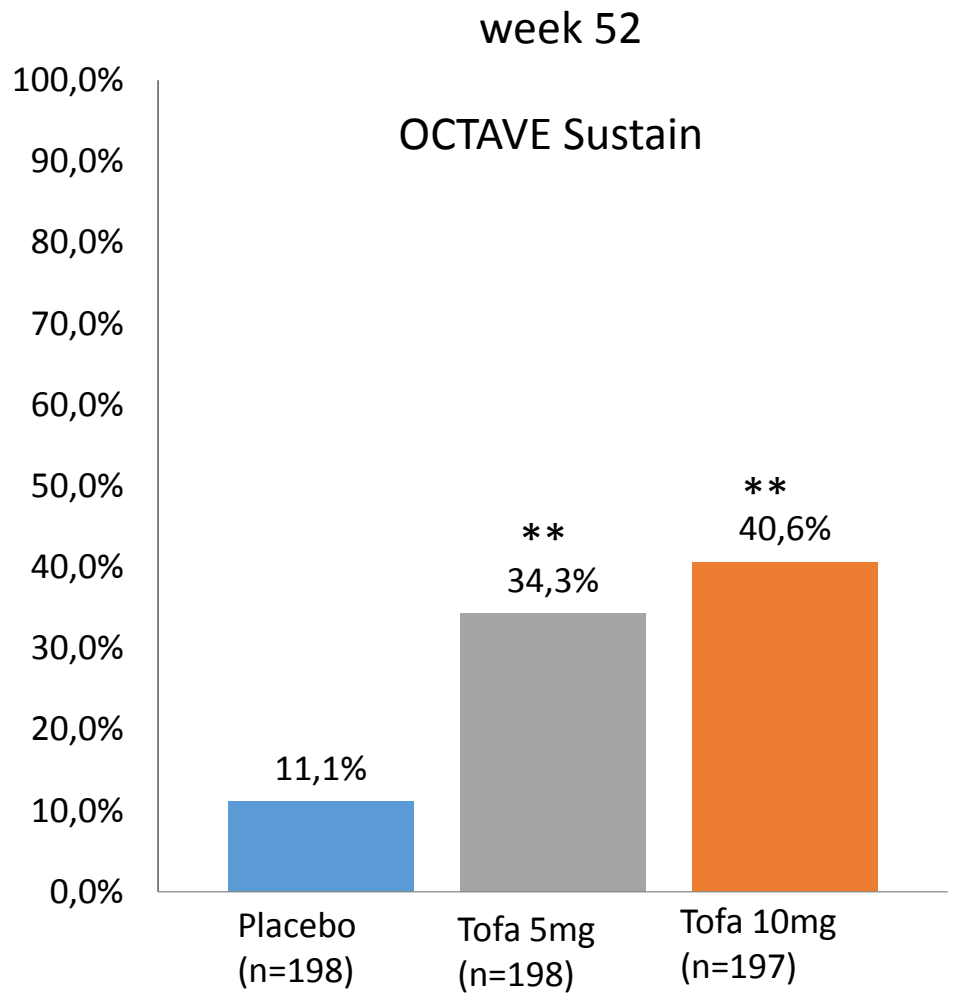
- Anti-TNFα
- Anti-IL-12/23

Cell Migration

- Anti-integrins:
  - Anti-α4β7
  - Anti-β7
  - Anti-MadCAM
- S1P1R modulation

Tofacitinib: Remission – primary endpoint

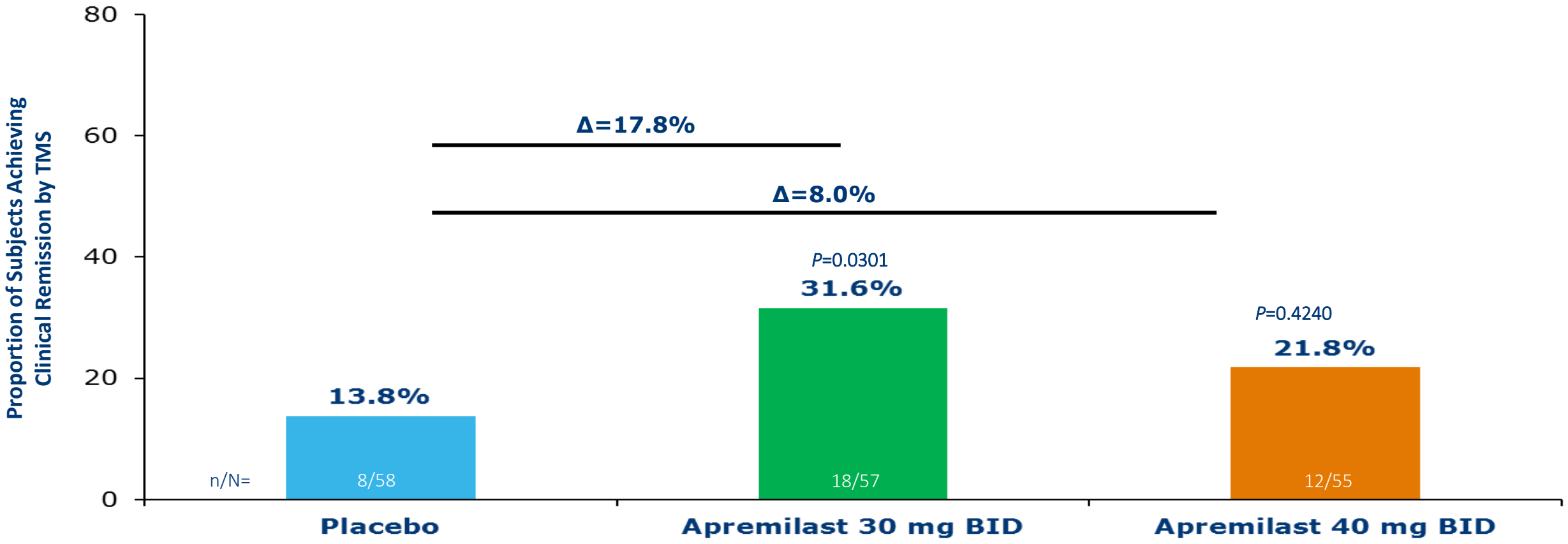




* p=0,007 vs. Placebo, ** p<0,001 vs. Placebo

Sandborn WJ et al. N Engl J Med 2017; 376(18):1723-1736.

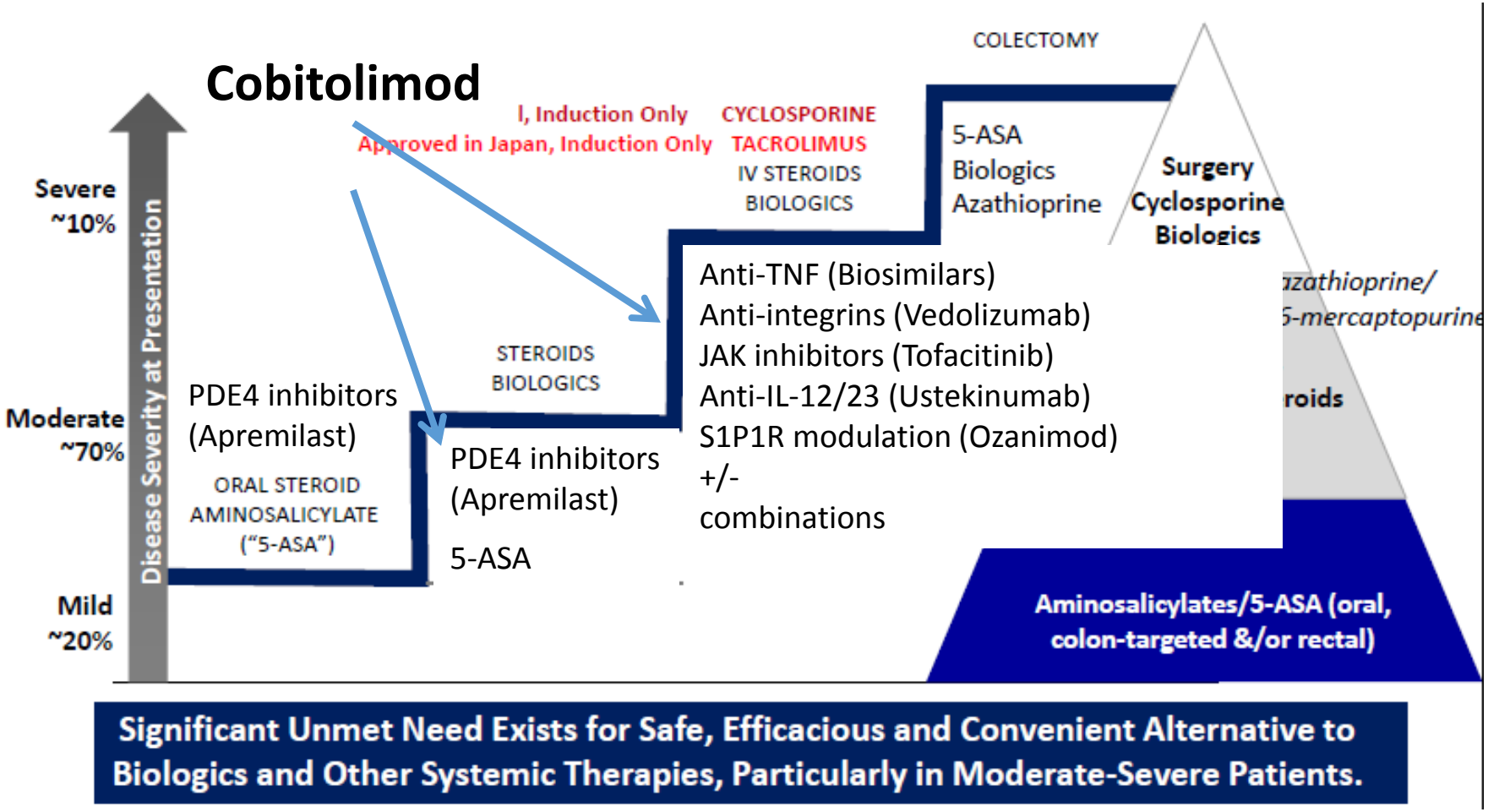
Apremilast: remission – primary endpoint



*TMS ≤2, with no individual subscore >1.

ITT=intent to treat; NRI=non-responder imputation.

Potential Future Treatment Algorithm of Ulcerative Colitis



Conclusions

- There is an unmet need in the management of UC on various dimensions:
  - Understanding the biology and heterogeneity of the disease
  - Endpoint are lacking validity, granularity and relevance
  - Treatment optimization strategies in UC are missing
  - There is a dire need of new mode of actions

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Cobitolimod

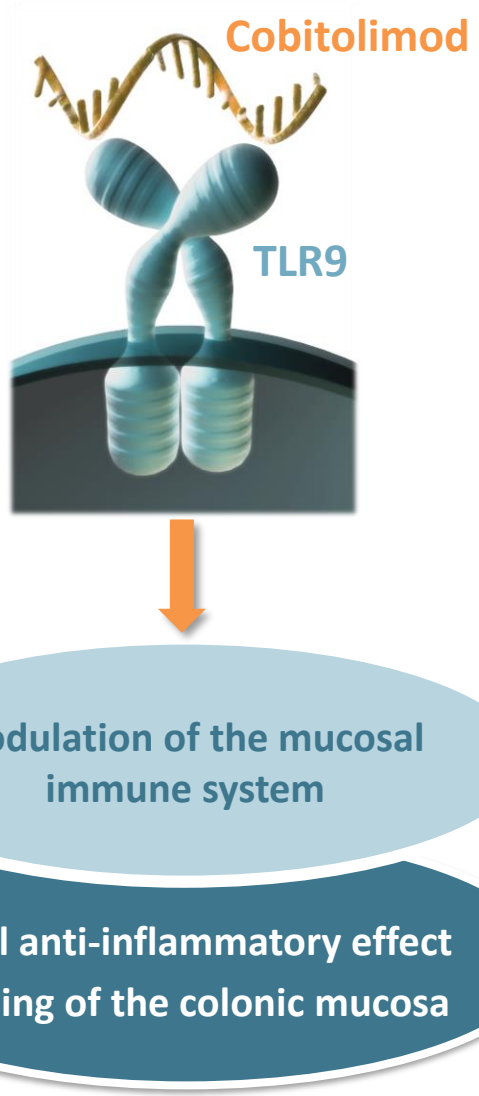
A promising first in class drug candidate for the treatment of ulcerative colitis

Professor Raja Atreya
University of Erlangen-Nürnberg

FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG
MEDIZINISCHE FAKULTÄT

Cobitolimod is a First in Class TLR9 Agonist

Cobitolimod is an oligonucleotide which activates Toll Like Receptor 9 (TLR9) by mimicking microbial DNA



Toll-like Receptor 9 (TLR9)

- TLRs are key pattern recognition receptors of the innate immune system
- TLR9 is expressed in intestinal immune cells and on the surface of epithelial cells
- TLR9 recognizes unmethylated CpG sequences of bacterial and viral DNA
- Cobitolimod contains a CpG motif that can mimic the natural ligand of TLR9 and induce immunomodulatory effects
- Binding of cobitolimod to TLR9 aims to restore the innate immune function and balance the immune cells

Cobitolimod - Clinical Development Overview

STUDY TYPE	NO. OF PATIENTS	YEAR
Pilot (1x30mg)	11	2001
Dose finding study, CSUC-01/02 (1x0.3mg-100mg)	151	2005
Phase II CSUC-01/06 (1x30mg)	34	2009
Compassionate Use (1-3x30mg)	14	2011
COLLECT (2x30 mg)	130	2014

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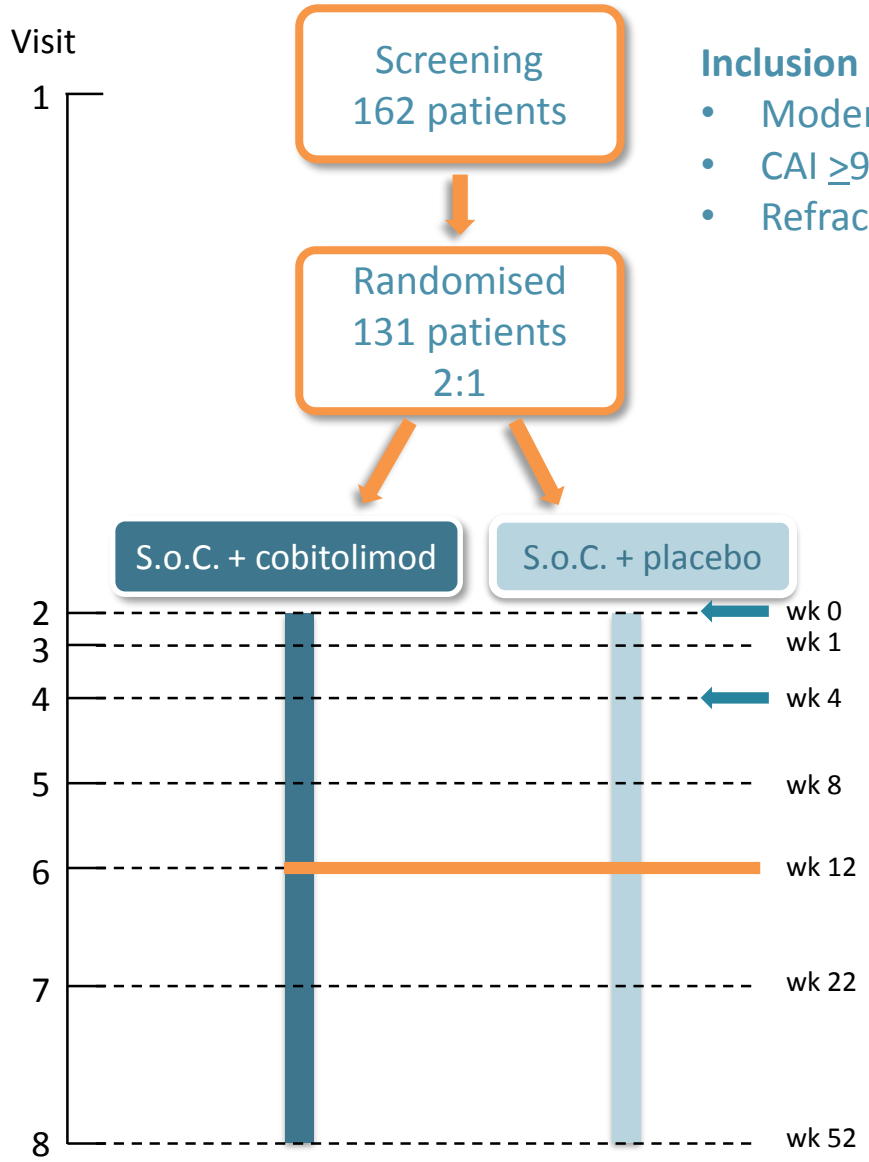
COLLECT Study Design



Inclusion Criteria:

- Moderate to severe active UC
- CAI ≥9 , Endoscopic Mayo Score ≥2
- Refractory to available therapy

Dosing 30 mg

Dosing 30 mg

Primary endpoint assessment

S.o.C = Standard of care

COLLECT was conducted with the global company Covance as the CRO

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Demographics of Patients at Baseline

TYPE	PLACEBO (n=43)	COBITOLIMOD (n=81)	OVERALL (n=124)
Age (yr)	43.1	41.1	41.8
Gender f/m (%)	26/74	41/59	36/64
Smoker (%)	7.0	6.2	6.5
UC duration (yr)	9.1	9.2	9.2
CAI score, mean	11	11	11
Endoscopic Mayo score, mean	2.6	2.6	2.6
Histologic Geboes score, mean	3.6	3.6	3.6

Full analysis set

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Anti-TNF-Antibody Exposure

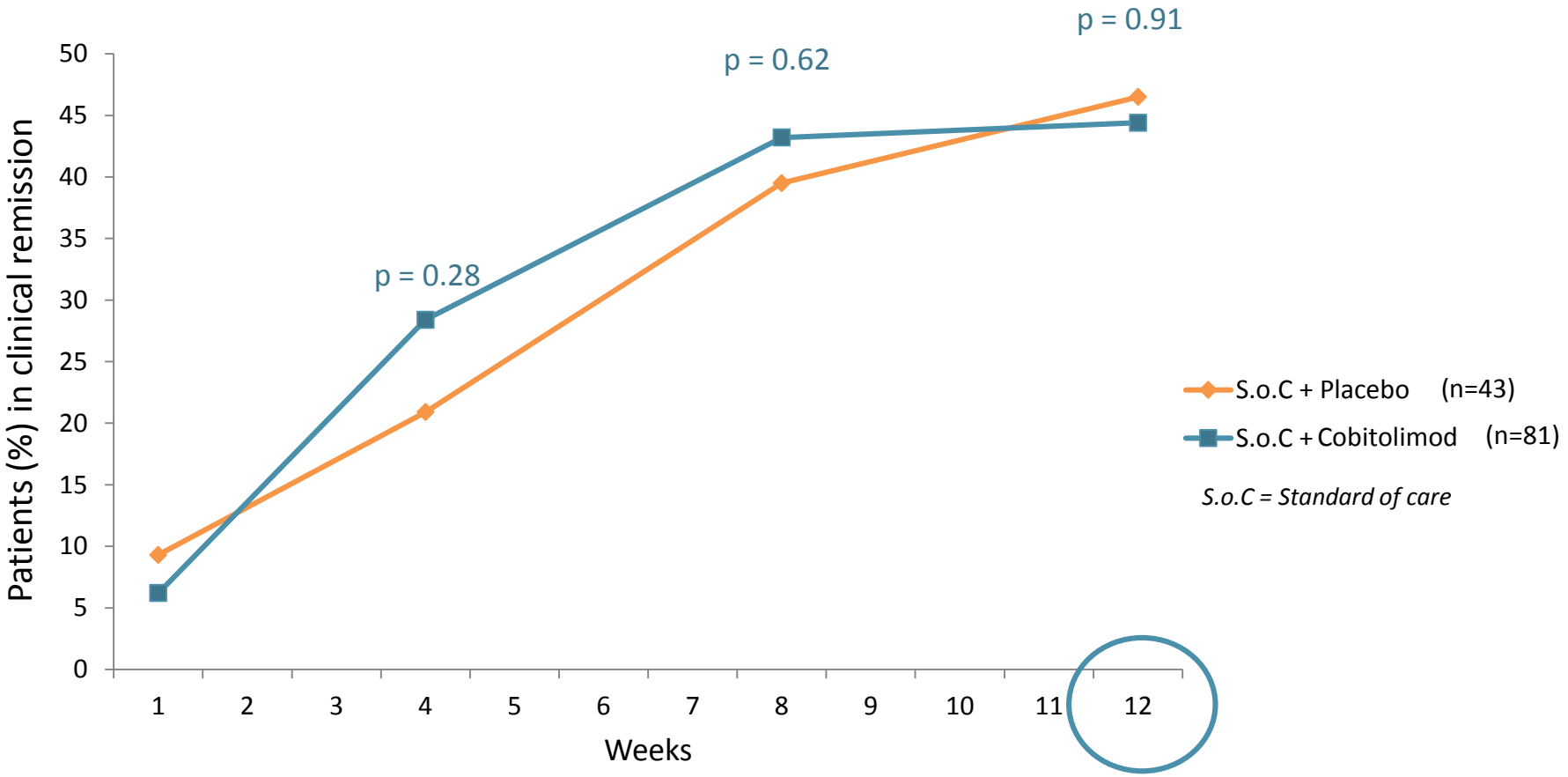
	PLACEBO (n=43)	COBITOLIMOD (n=81)
Anti-TNF experienced	39.5% (n=17)	38.5% (n=31)
Anti-TNF naive	60.5% (n=26)	61.5% (n=50)

Full analysis set

InDex Pharmaceuticals

Primary Endpoint with an Unexpected High Placebo Rate

Induction of Clinical remission at week 12 according to Rachmilewitz/CAI score ≤4



Full analysis set

UC Index Scores: Relevant Endpoints are Underweighted in CAI

- **Stool frequency**
- **Rectal bleeding**
- **Endoscopy**

are the **most relevant** subscores and are **under-represented** in the CAI score.

- Regulators require Mayo Activity Index without the subjective Physician Assessment

Cobit

IFX
ADA
VDZ

UC Scores	Clinical Activity Index (CAI)	Mayo Activity Index (DAI)
Stool Frequency	0-3	0-3
Rectal Bleeding	0-4	0-3
Endoscopy		0-3
Physician Assessment	0-3	0-3
Abdominal Cramps	0-3	
Extraintestinal manifestations (iritis, eritema nodosum, arthritis)	0-9	
Temperature	0-3	
Lab. findings (ESR, Hb)	0-4	
Total max score	29	12

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High Placebo Rate in the Primary Endpoint of COLLECT Driven by "Stringency" and "Time"

- Missed primary endpoint at week 12 due to unexpected high placebo rate
  - Clinical remission defined as Rachmilewitz/CAI score ≤4
- The high placebo remission rate is understood and driven by:

1. **No hard definition of primary endpoint**
   CAI ≤4 too noisy endpoint, no requirements on the subscores
2. **No robust scoring system for UC disease activity**
   CAI score too UC unspecific, known to induce high placebo rates, not used anymore
3. **Time point of primary endpoint too late (week 12)**
   Spontaneous remission due to nature of the disease & concomitant medication
   All patients on concomitant glucocorticosteroids

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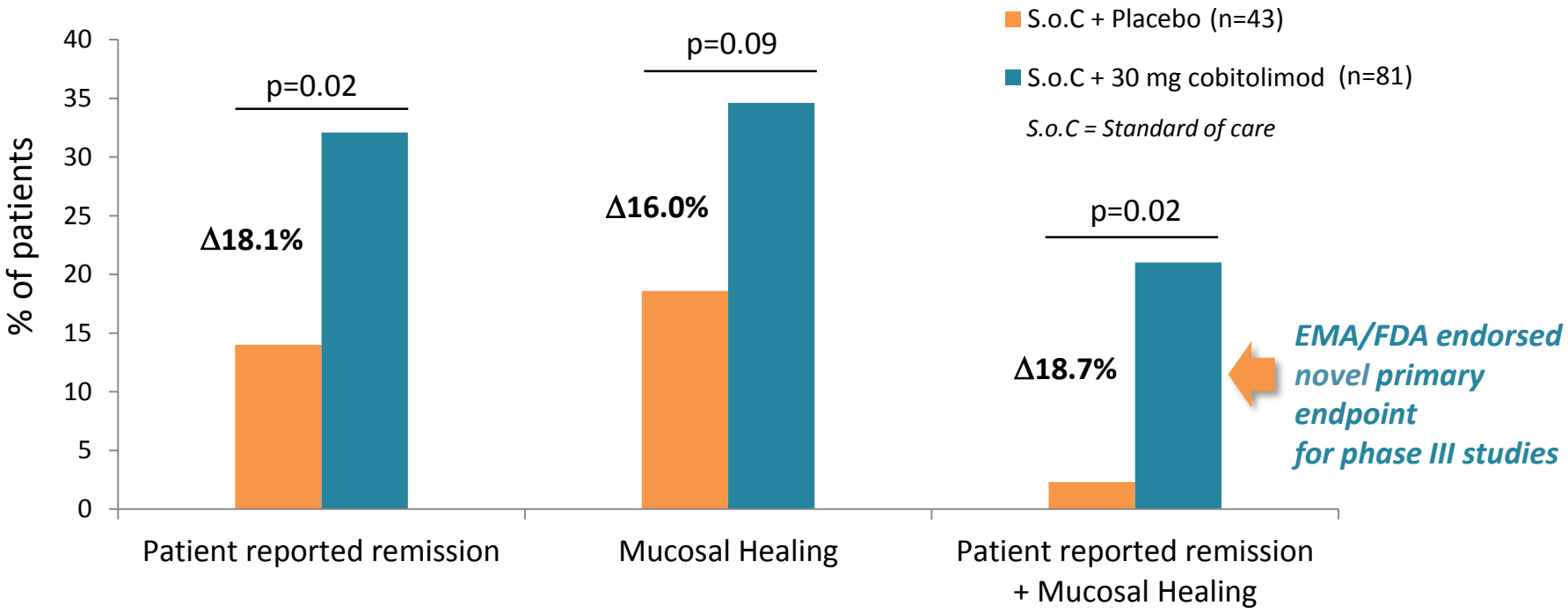
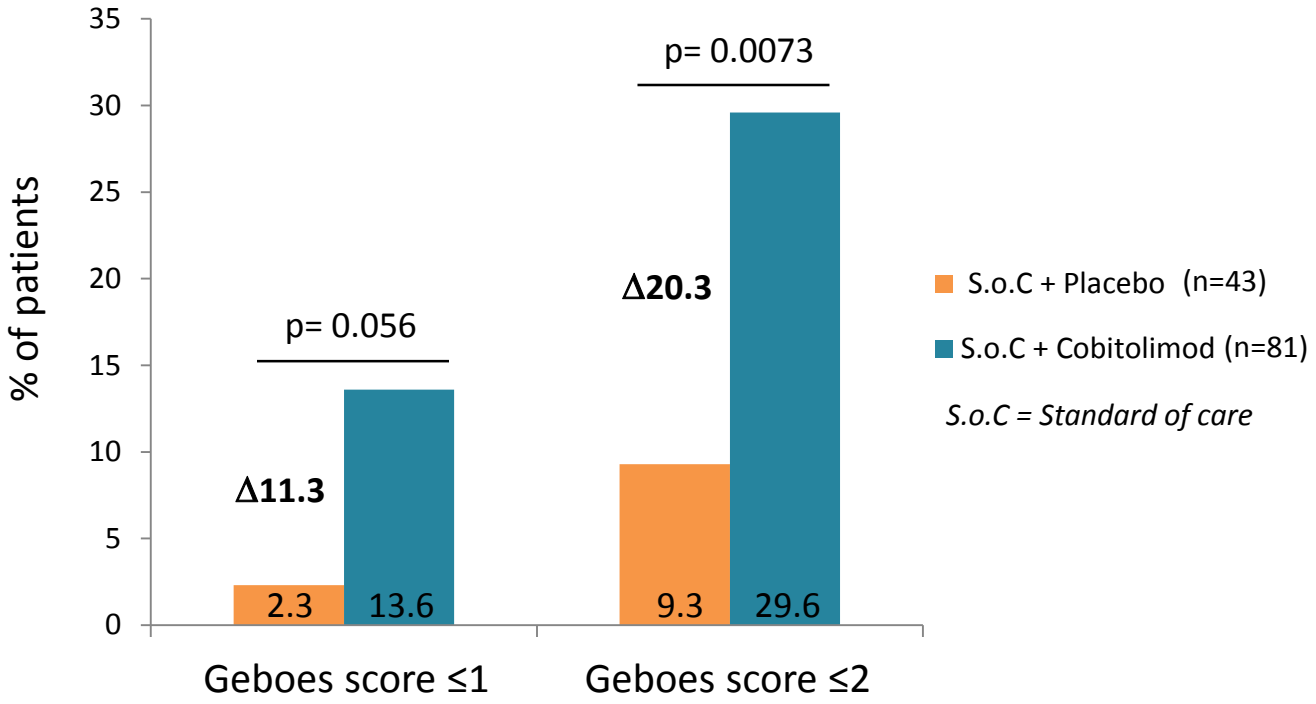
Cobitolimod Induces Significant Improvement in Key Symptoms at Week 4



Induction of patient reported remission at week 4 defined as no blood in stool & stools per week <35
Induction of mucosal healing at week 4 defined as endoscopic Mayo score of 0 or 1

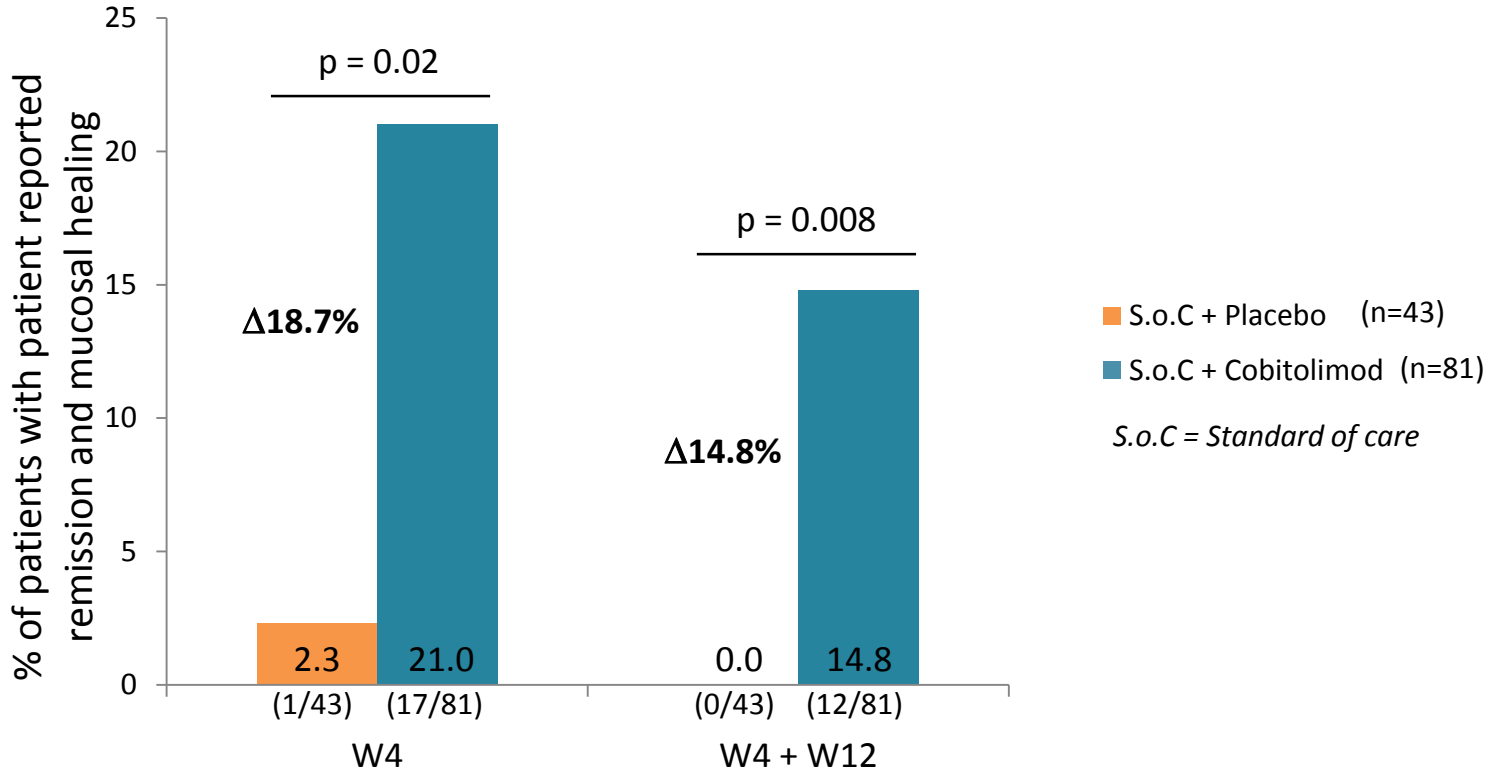
 Full analysis set

Cobitolimod Improves Histopathological Disease Activity Score at Week 4



Histological evaluation according to the method described by Geboes (score 0: normal mucosa to score 5: erosions/ulcerations; biopsies taken from most inflamed areas)

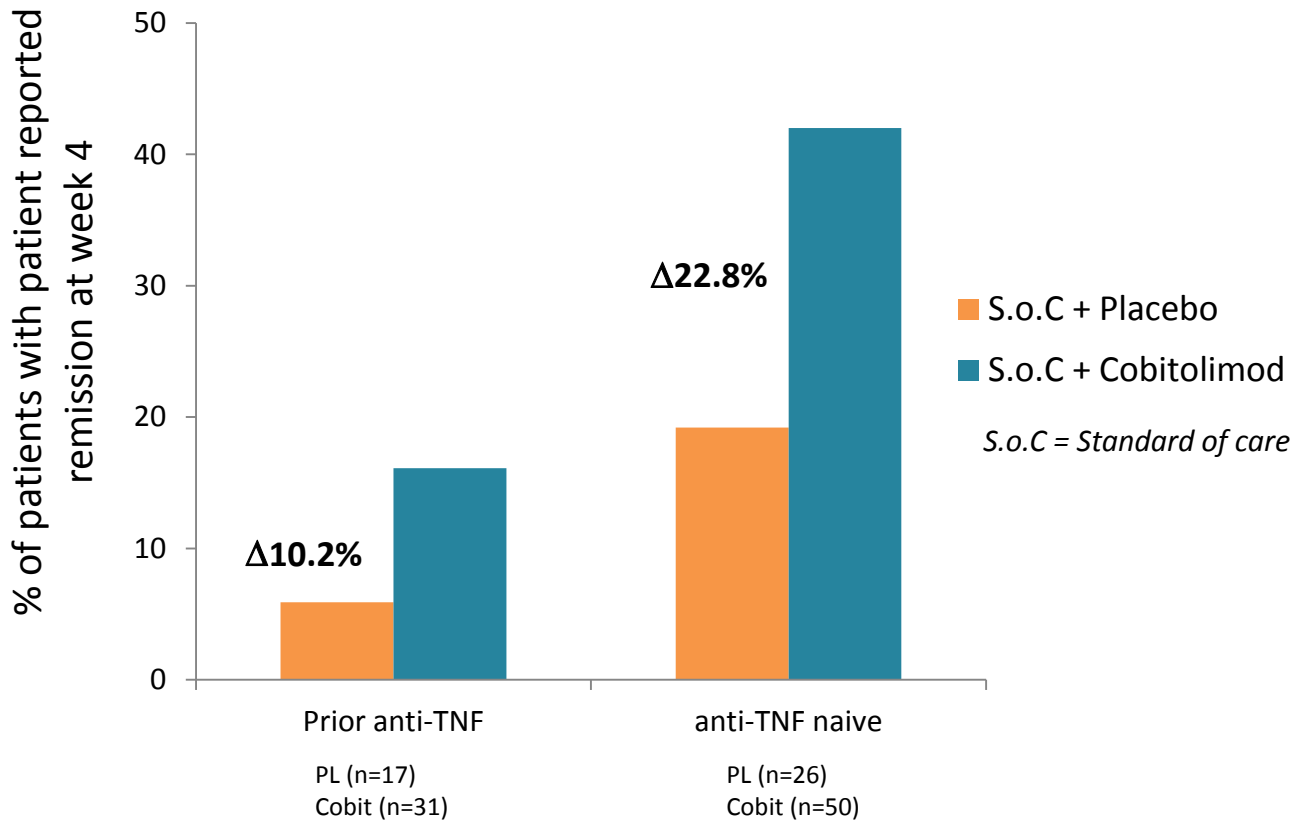
70% of Remitters at W4 Maintain Remission at W12



Patient reported remission and mucosal healing: *blood in stool = 0, weekly stool <35 with mucosal appearance of 0 or 1*

 Full analysis set

Efficacy in both anti-TNF Naïve and Exposed Patients



Patient reported remission at week 4 defined as no blood in stool, stools per week <35

 Full analysis set

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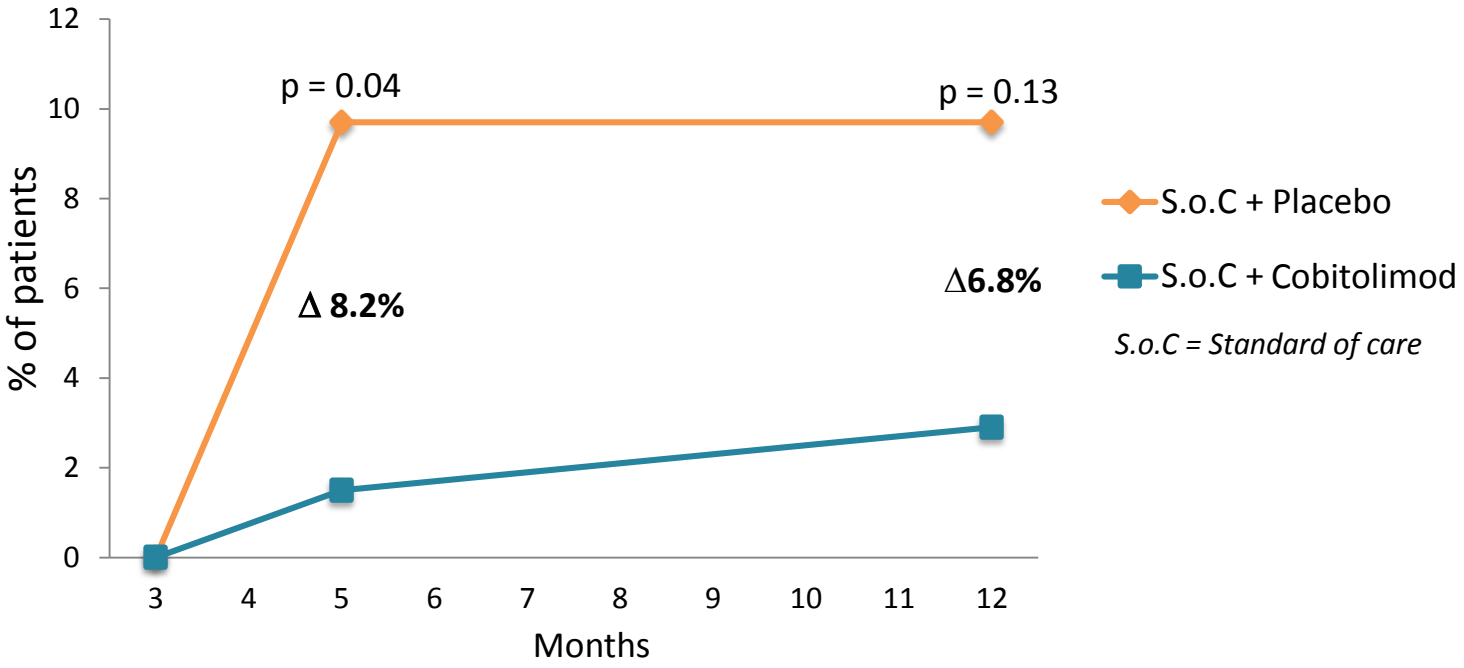
Cobitolimod Reduces the Rate of Colectomy



Parameter	S.o.C + Placebo (N=31)	S.o.C + Cobitolimod (N=68)	Δ(%)
At 5 months	3 (9.7)	1 (1.5)	8.2
At 12 months	3 (9.7)	2 (2.9)	6.8

Per protocol set

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Cobitolimod has a Good Safety Profile

TREATMENT-EMERGENT ADVERSE EVENTS (SAFETY ANALYSIS SET)	S.O.C + PLACEBO (n=43) n (%)	S.O.C. + COBITOLIMOD (n=87) n (%)	OVERALL (N=130) n (%)
Patients with AEs	25 (58.1)	52 (59.8)	77 (59.2)
Patients with Gastrointestinal AEs	6 (14.0)	16 (18.4)	22 (16.9)
Patients with Serious AEs	8 (18.6)	10 (11.5)	18 (13.8)
Deaths	0	0	0
Patients with Treatment Related AEs	4 (9.3)	10 (11.5)	14 (10.8)
Patients with Treatment Related SAEs	1 (2.3)	3 (3.4)	4 (3.1)
Patients with AEs Leading to Discontinuation	1 (2.3)	2 (2.3)	3 (2.3)

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COLLECT Study Successfully Published in JCC

Journal of Crohn's and Colitis, 2016, 1294–1302
doi:10.1093/ecco-jcc/jjw103
Advance Access publication May 20, 2016
Original Article

Original Article

Clinical Effects of a Topically Applied Toll-like Receptor 9 Agonist in Active Moderate-to-Severe Ulcerative Colitis

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Conference Presentations: Part of this work has been presented at the European Crohn's and Colitis Organisation Conference 2015 [Barcelona], Digestive Disease Week 2015 [Washington] and United European Gastroenterology Week 2015 [Barcelona].

The clinical trial registration number is NCT01493960 and EudraCT number 2011-003130-14.

Abstract

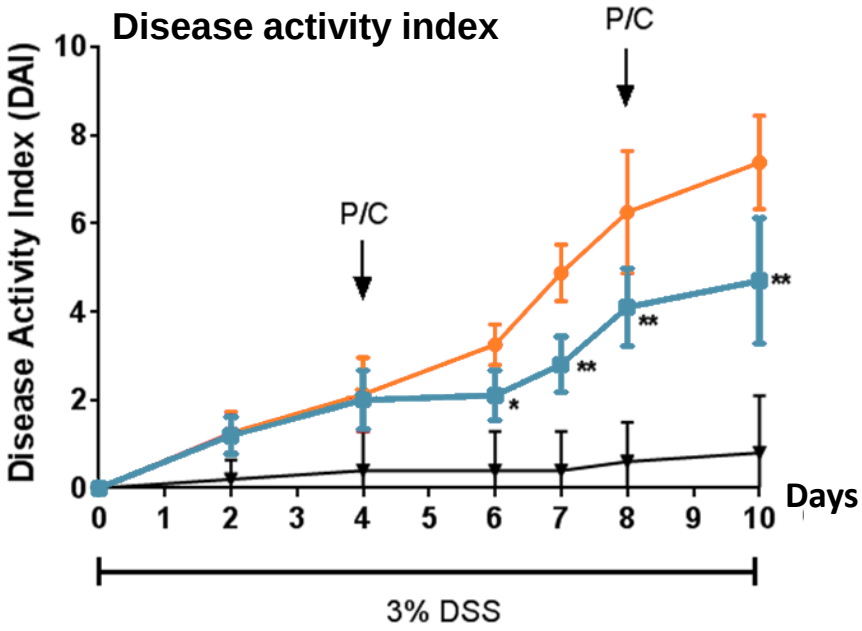
Background and Aims: Toll-like receptors [TLRs] are potential drug targets for immunomodulation. We determined the safety and efficacy of the TLR-9 agonist DNA-based immunomodulatory sequence 0150 [DIMS0150] in ulcerative colitis [UC] patients refractory to standard therapy.
Methods: In this randomized, double-blind, placebo-controlled trial, 131 patients with moderate-to-severe active UC were randomized to receive two single doses of the oligonucleotide DIMS0150 [30 mg] or placebo administered topically during lower GI endoscopy at baseline and Week 4. The primary endpoint was clinical remission, defined as Clinical Activity Index [CAI] ≤4, at Week 12. Secondary endpoints included mucosal healing and symptomatic remission of key patient-reported outcomes [absence of blood in stool and weekly stool frequency <35].
Results: There was no statistical significant difference between the groups in the induction of clinical remission at Week 12, with 44.4% in the DIMS0150 group vs. 46.5% in the placebo group. However, the proportion of patients who achieved symptomatic remission was 32.1% in the DIMS0150 group vs. 14.0% in the placebo group at Week 4 [$p = 0.020$], and 44.4% vs. 27.9% at Week 8 [$p = 0.061$]. More patients on DIMS0150 compared with those on placebo had

Journal of Crohns and Colitis, 2016 Nov;10(11):1294-1302

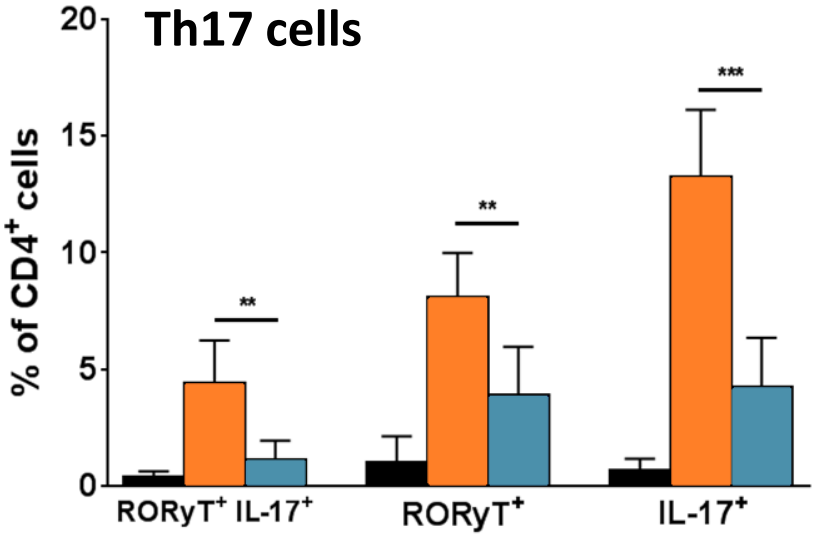
New Mechanism of Action Data for Cobitolimod Presented at the 2018 ECCO Congress

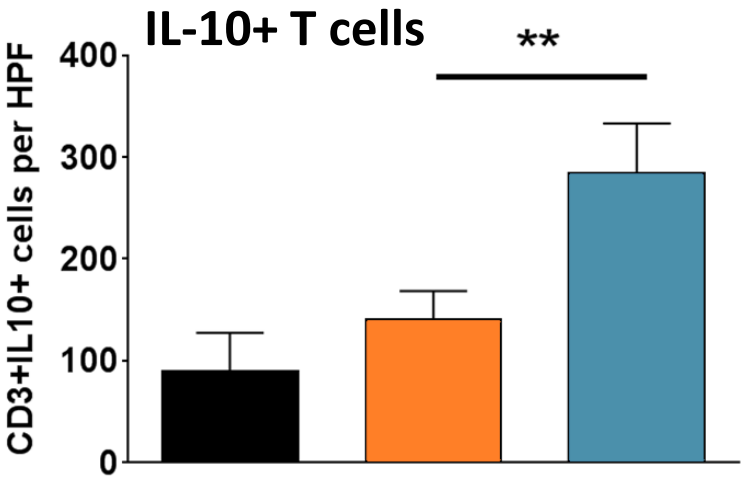
- The data were presented orally during the single track scientific program at ECCO
  - The largest IBD congress in the world with more than 6000 delegates
- The scientific abstract was selected amongst the top 10 out of 1,366 submitted abstracts
- Th17/Treg and Th2/Th1 immune imbalance plays a crucial role in the development of UC
- The data show that cobitolimod can balance the mucosal Th17/Treg cell response in UC

Cobitolimod Ameliorates Experimental Colitis by modulating the Th17/Treg imbalance



P = Placebo (n=8)
C = Cobitolimod (n=10)

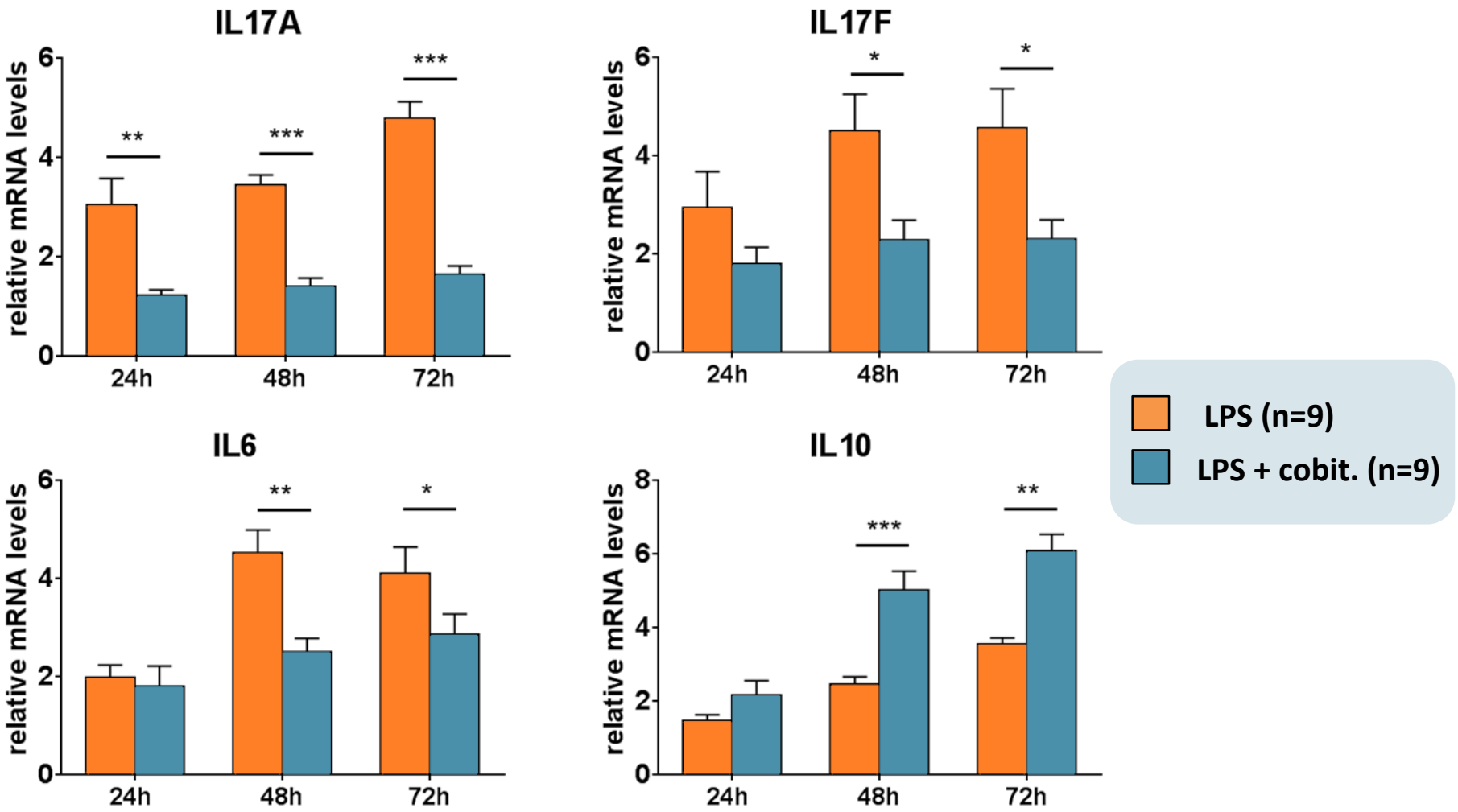




Untreated, no DSS (n=5)
Placebo (n=8)
Cobitolimod 84 µg (n=10)

*p<0.05
**p<0.01
**p<0.001

Cobitolimod Decreases IL17 & IL6 & Increases IL10 production in cultured mucosal cells of UC patients



*Expression of different cytokines in LPMCs from UC patients stimulated with LPS in vitro with or without cobitolimod, *p≤0.05, **p ≤0.01, ***p ≤0.001*

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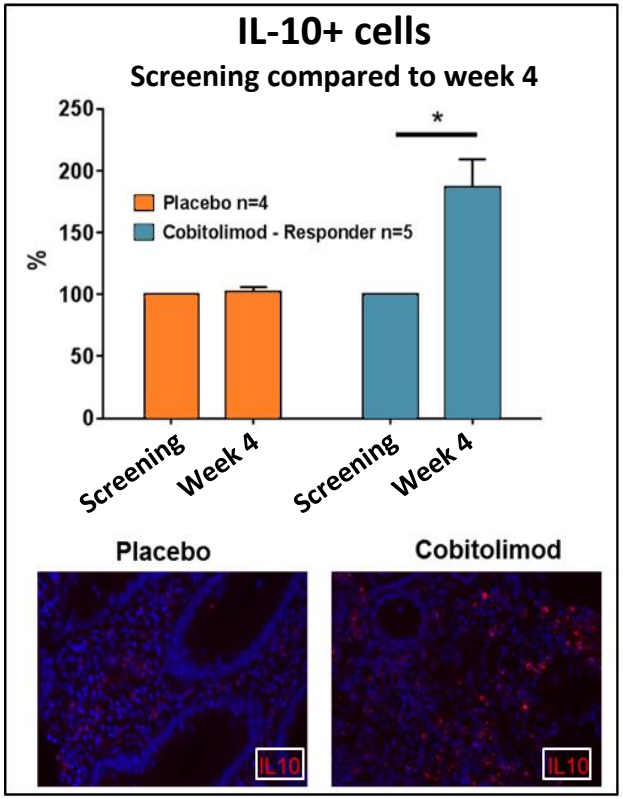
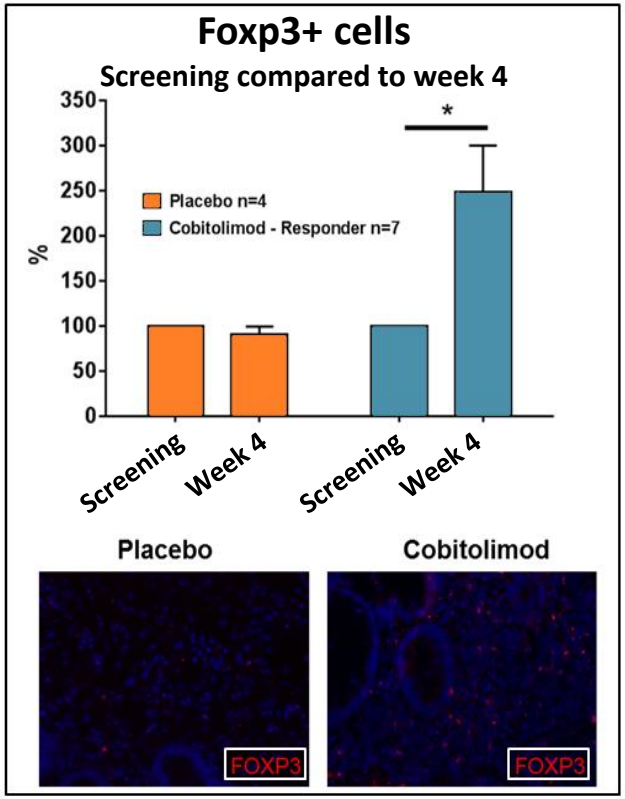
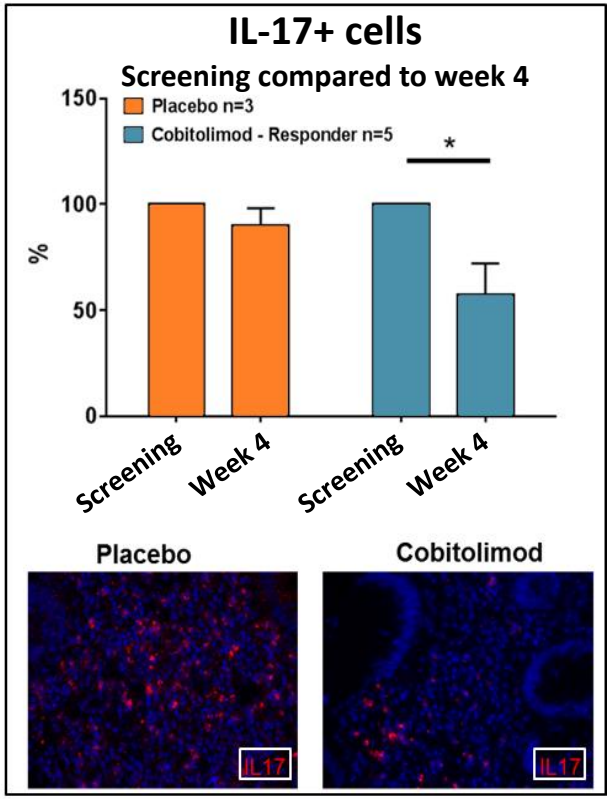
Cobitolimod Increases IL10+ and FOXP3+ and Decreases IL17+ Intestinal Cells in UC Patients







*p<0.05

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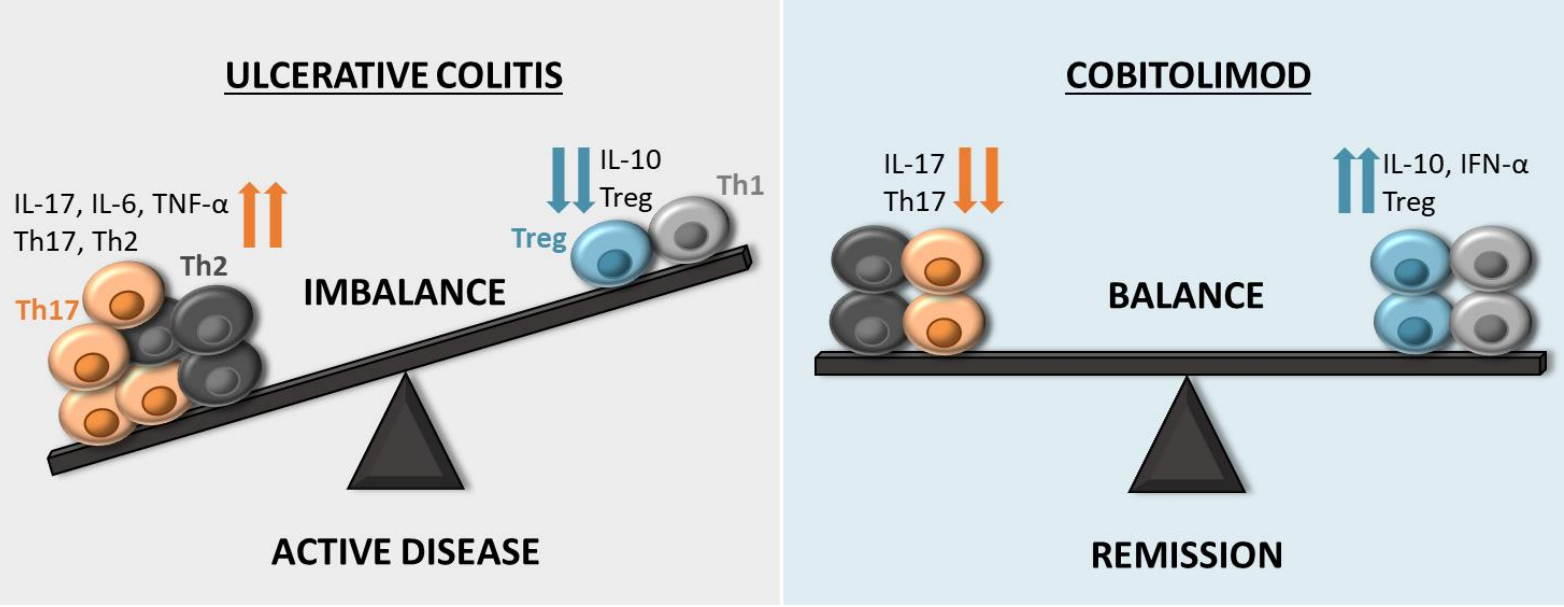
Cobitolimod Induces an Anti-Inflammatory Milieu that Balances the Immune System in UC

- Topical luminal administration of cobitolimod modulates the immune response in patients with active UC
- Cobitolimod application induces anti-inflammatory (IL10) and suppresses pro-inflammatory (IL17, IL6) cytokine production
- Cobitolimod modulates the Th17/Treg imbalance in mucosal inflammation



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Cobitolimod - A Promising Novel Therapy in UC

- Cobitolimod is a potential new medication for moderate to severe ulcerative colitis
- Cobitolimod has achieved clinical proof of concept with a very favorable safety profile
- 4 completed clinical studies, 249 patients treated with cobitolimod

- Novel and unique mechanism of action in late stage clinical development for UC
- High efficacy with good safety profile
- Local treatment, provides rapid onset of action

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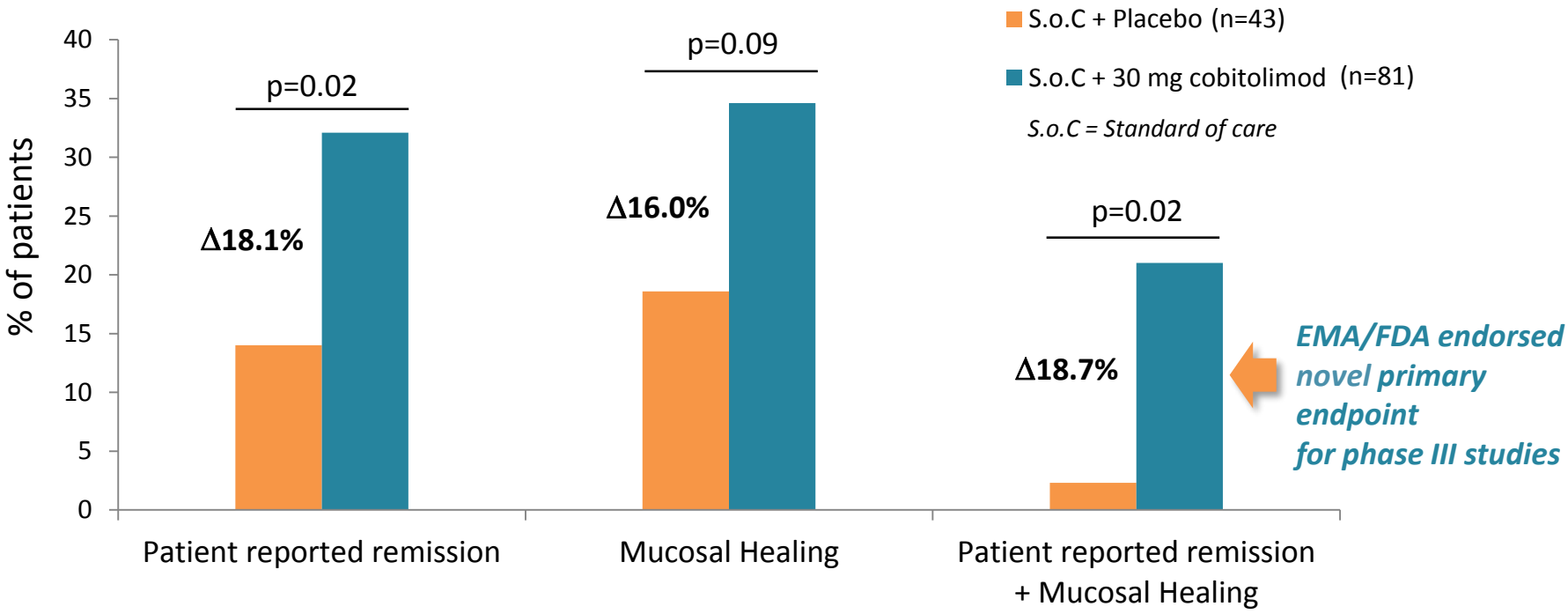
The phase IIb study CONDUCT

Dr Thomas Knittel
Chief Medical Officer
InDex Pharmaceuticals

Cobitolimod Induces Significant Improvement in Key Symptoms at Week 4



Induction of patient reported remission at week 4 defined as no blood in stool & stools per week <35
Induction of mucosal healing at week 4 defined as endoscopic Mayo score of 0 or 1

 Full analysis set

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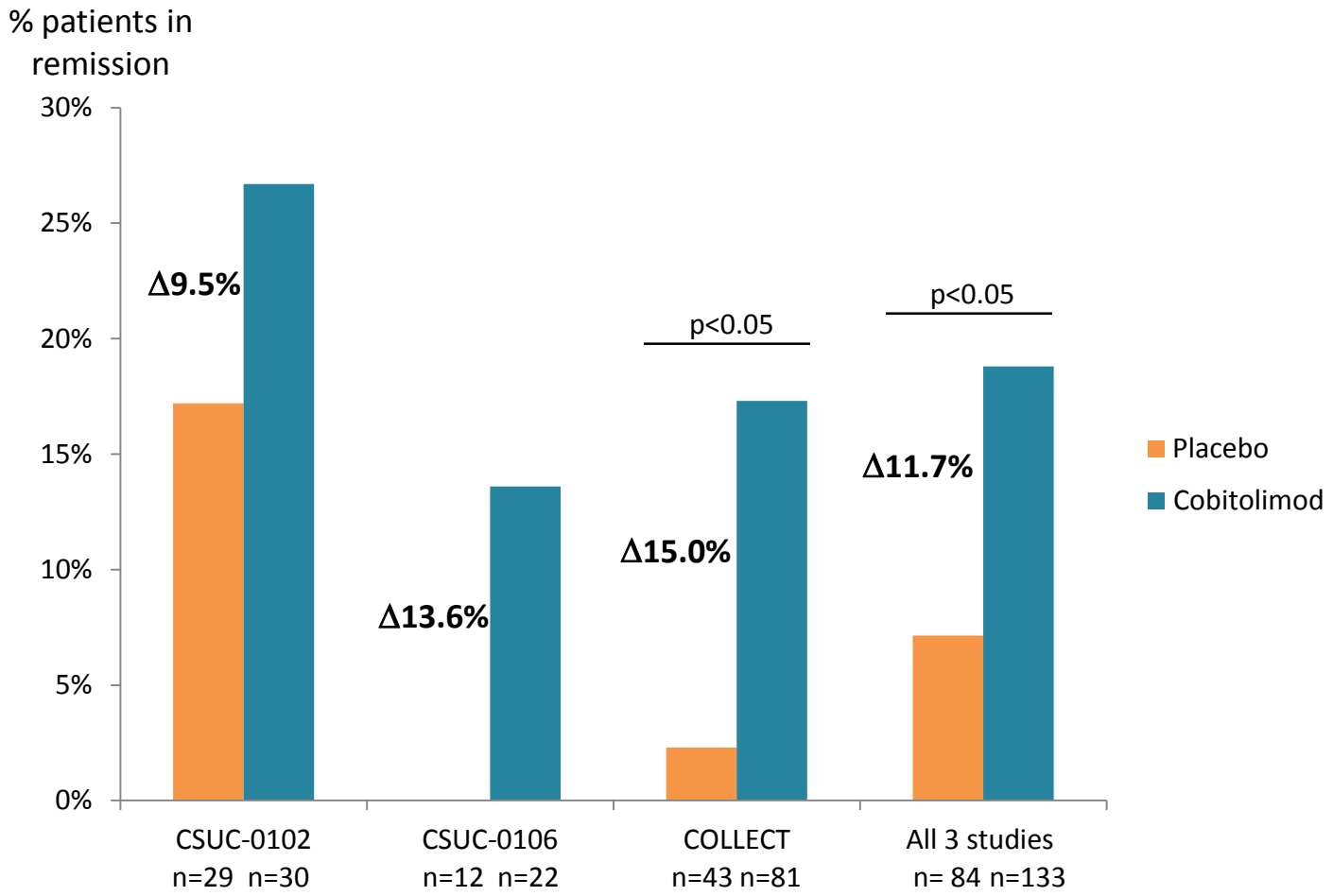
Meta Analysis of Three Independent Placebo-Controlled Clinical Studies Provide Proof of Concept

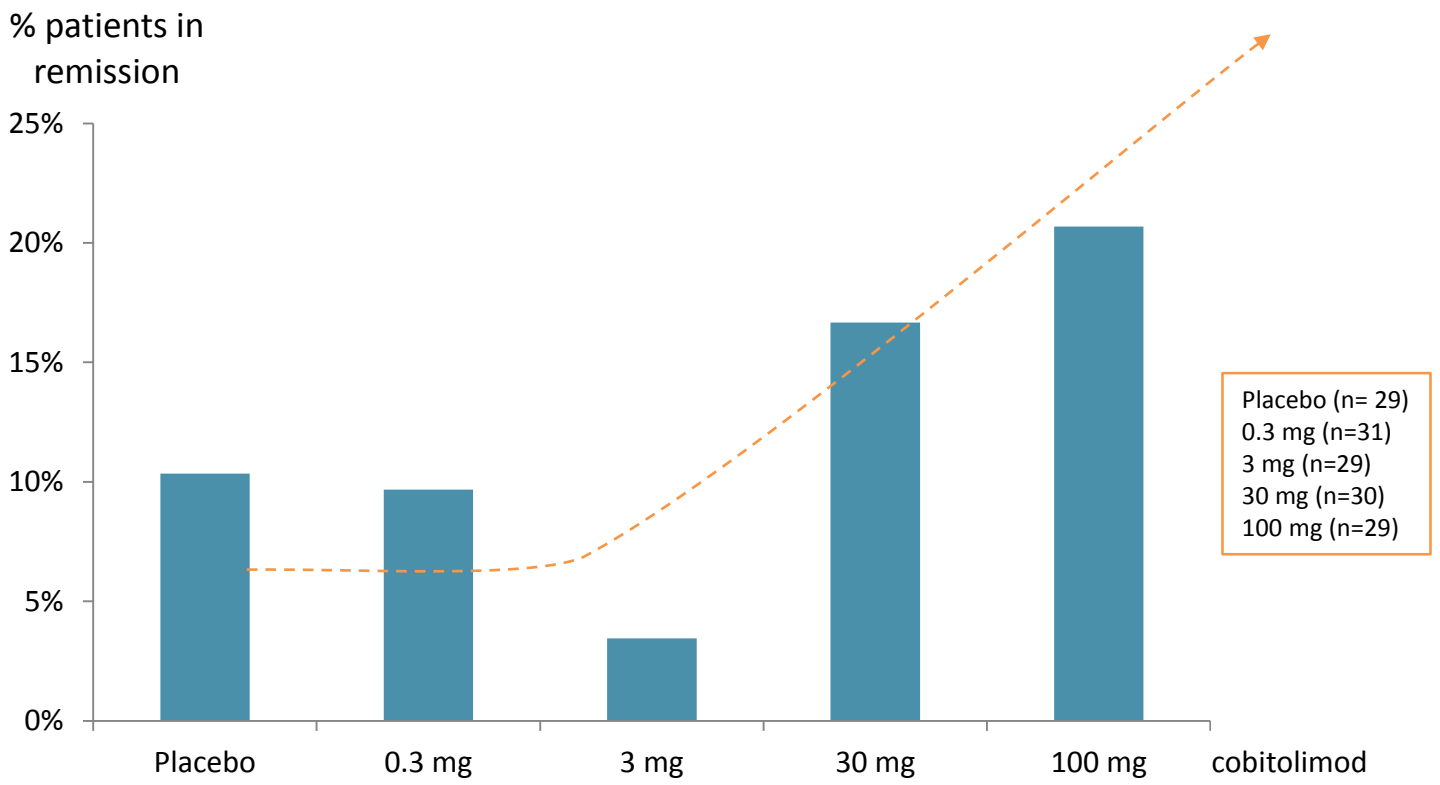


Clinical Remission defined as Mayo score (or converted CAI for COLLECT) ≤2 with no subscore exceeding 1

Full analysis set

STUDY CSUC-01/02

Clinical Data Supports Improved Efficacy with Higher Doses



Clinical remission defined as Mayo score = 0 at week 4

Full analysis set

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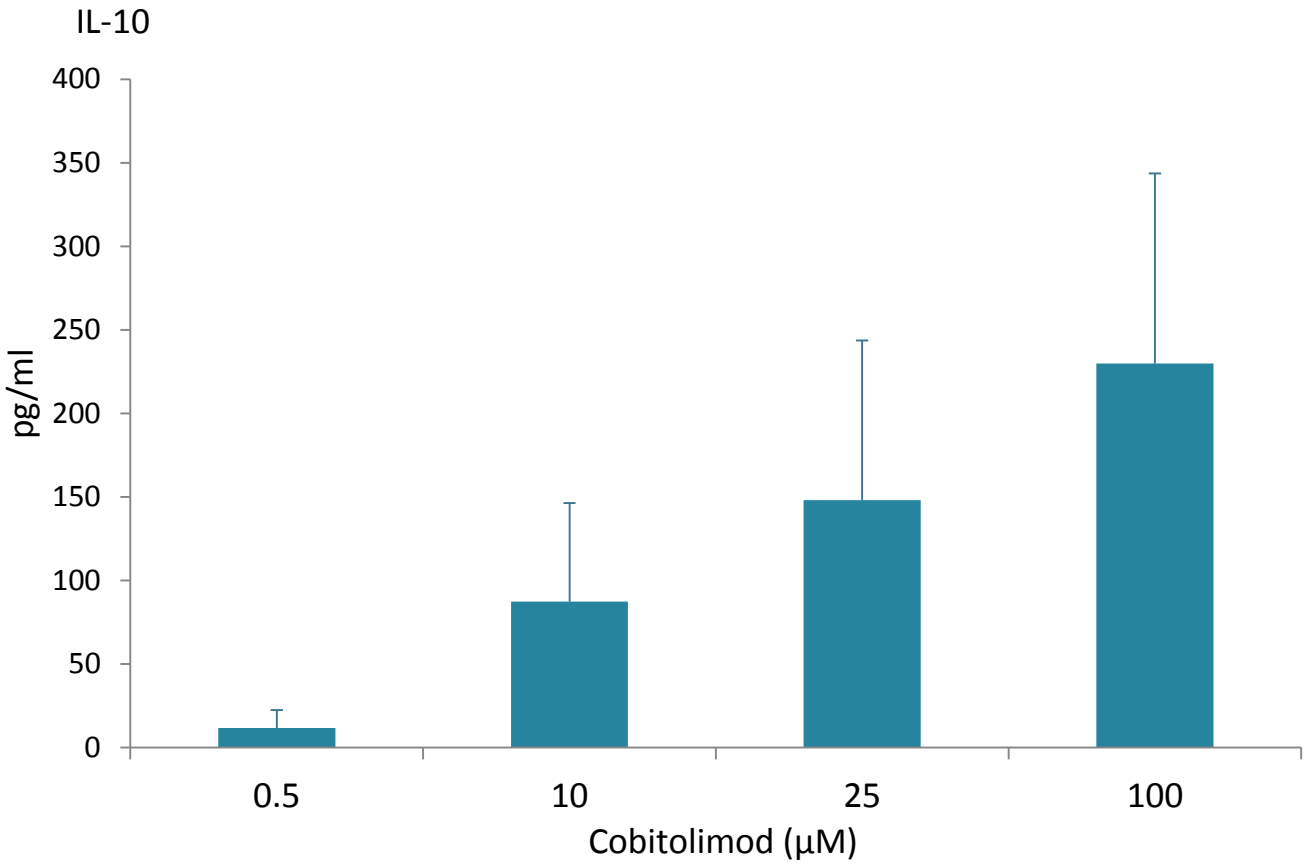
Cobitolimod Induces Dose Dependent Release of IL-10 in Human Cells



IL-10 release from PBMCs stimulated with different concentrations of cobitolimod

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Cobitolimod has Excellent Safety Profile

- 249 patients dosed in completed studies
  - Side-effect profile same as placebo in all studies
  - No drug related serious adverse events
- Extensive toxicology package performed in rodent and monkey
  - Rectal, i.v. bolus, and s.c. route of administration investigated up to 100 mg/kg
  - Maximum Tolerated Dose was not reached
  - Only mild inflammation at injection site (s.c. only) and marginal increase in spleen weight observed, effects reversible
  - Toxicology package supports dosing regimens in the CONDUCT phase IIb study

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Potential to Further Increase the Efficacy of Cobitolimod

- Competitive efficacy in clinical trials with low and infrequent dosing of cobitolimod
- Excellent safety profile in clinical trials and toxicology studies
- Room for increasing dose and dosing frequency
- Clinical and preclinical data supporting dose dependent efficacy

Dose optimisation study aimed to provide substantially higher efficacy while maintaining the excellent safety profile

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The Phase IIb Dose Optimisation Study CONDUCT

Study title

A randomised dose optimisation study to evaluate the efficacy and safety of cobitolimod in moderate to severe active ulcerative colitis patients

Primary objective

To evaluate the efficacy of cobitolimod treatment at different dose levels and frequencies compared to placebo with regard to clinical remission 6 weeks after first treatment, in patients with moderate to severe active ulcerative colitis

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COLLECT Inputs for the CONDUCT Study Design

- Primary endpoint based on the Mayo score
- Earlier evaluation of primary endpoint
- Central reading of endoscopy
- Increase cobitolimod dose and/or frequency
- Concomitant steroids allowed, but not mandatory
- Use enema for administration of cobitolimod
- Left sided disease (approx. 70% of population)

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Primary Endpoint and Patient Population

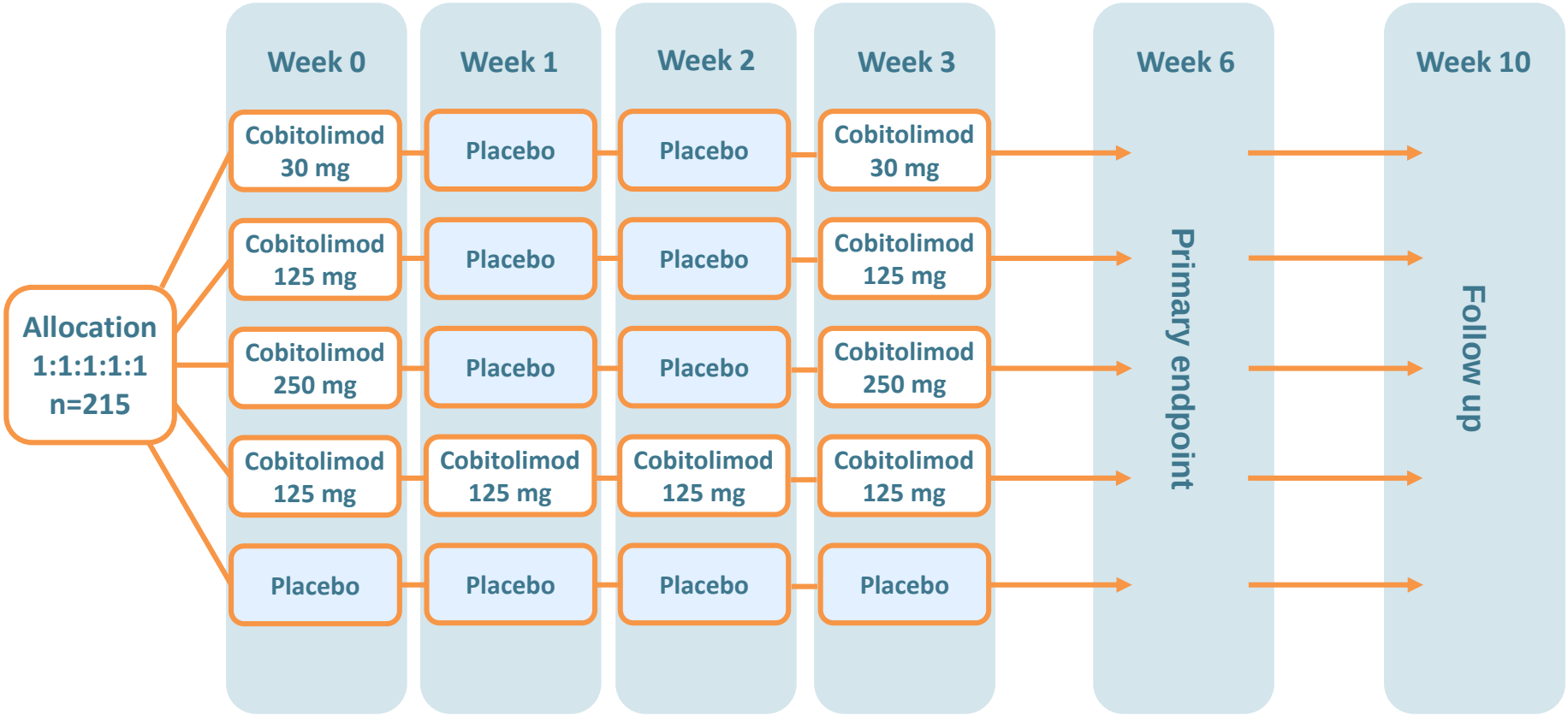
Primary endpoint

Clinical Remission at week 6 defined by Modified Mayo sub scores:
i) rectal bleeding of 0
ii) stool frequency of 0 or 1 (with at least one point decrease from Baseline), and
iii) endoscopy score of 0 or 1 (excluding friability)

Summary of inclusion/exclusion criteria

- Adult patients with moderate to severe active left sided UC, defined by a Modified Mayo score (excluding friability at grade 1) of 6 to 12 with an endoscopic sub score ≥2
- Current oral 5-ASA/Sulphasalazine use or a history of oral 5-ASA/Sulphasalazine use
- Current Glucocorticosteroid (GCS) use or history of GCS dependency, refractory, or intolerance
- Demonstrated an inadequate response, loss of response, or intolerance to at least one of the following agents:
  - Immunomodulators, e.g. cyclosporine, methotrexate, AZA/6-MP, tacrolimus
  - TNF-α inhibitors and/or anti-integrins
- Concomitant treatment with cyclosporine, methotrexate, tacrolimus, TNF-α inhibitors, anti-integrins or similar immunomodulators not allowed

CONDUCT Study Design



conduct

CObitolimod as Novel DNA-based Ulcerative Colitis Treatment

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Implementation of the CONDUCT study

Pernilla Sandwall
Chief Operating Officer
InDex Pharmaceuticals

CONDUCT Study

- 215 patients will be included
- 90 clinics selected in 12 European countries:
  Czech Republic, France, Germany, Hungary, Italy, Poland, Romania, Russia, Serbia, Spain, Sweden and Ukraine

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PAREXEL as the CRO (Contract Research Organisation)

- PAREXEL ranked amongst the top five highest-rated CROs globally (CenterWatch survey, April 2017)
- 18 900 employees across 51 countries
- Experience from over 30 studies in UC and Crohn's disease
  - Leaders in central reading of endoscopy images
- Subsidiaries in all CONDUCT countries providing local knowledge and language expertise
- Signed full contract January 2017

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PAREXEL's CRAs - Key Players

Clinical Research Associates (CRAs) main role is to monitor clinical trials:

- Ensures compliance with the clinical study protocol
- Makes on-site visits to verify data and boost patient recruitment
- Assure that adverse events are correctly documented and reported
- Communicates frequently with personnel at the clinic
- Assure the protection of the rights, safety and well being of study patients

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InDex is a Very Active Sponsor

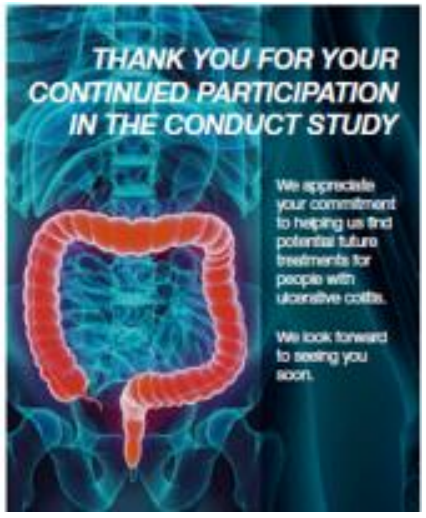
- Visit the majority of the sites
- Investigator's meetings
- CRA meetings
- Close collaboration with PAREXEL at all levels
- Professors Atreya and Reinisch actively involved

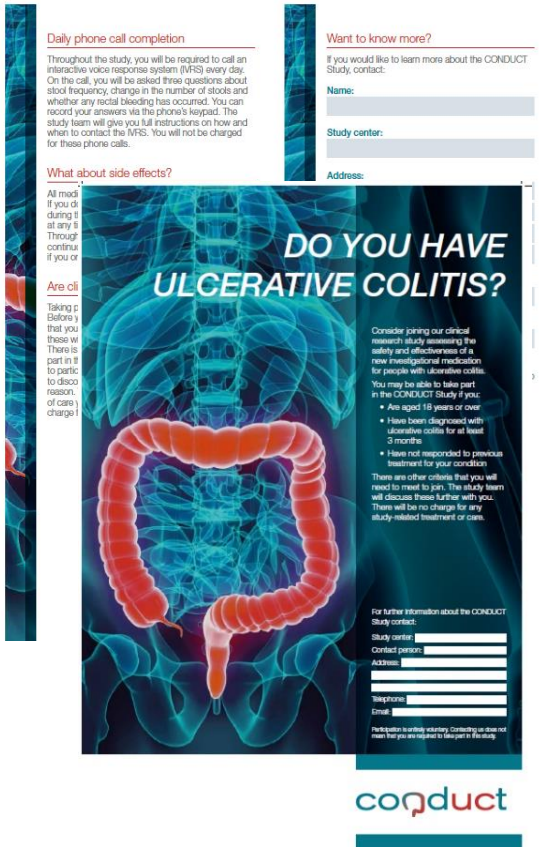
CONDUCT Branding and Recruitment Material

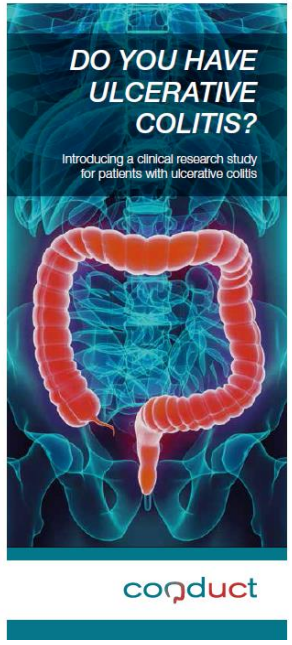
- Material for patient recruitment
- Information about the study to clinicians and patients
- Internet/social media recruitment

conduct

CObitolimod as Novel DNA-based Ulcerative Colitis Treatment







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CONDUCT from a Patient Perspective

1. **Informed consent (IC)**
   The patient receives detailed information, and signs the IC form for participation
2. **Screening**
   Review of criteria for study participation
3. **Randomisation**
   The patient is randomly assigned to either treatment with cobitolimod or placebo; no one knows which treatment is given
4. **E-diary**
   The patient reports the symptoms daily
5. **Visits to the clinic week 1-3**
   Additional study treatments, and study procedures
6. **Primary efficacy at week 6**
   All data for the primary endpoint is collected
7. **Follow-up visit at week 10**
   Last visit for procedures and data collection

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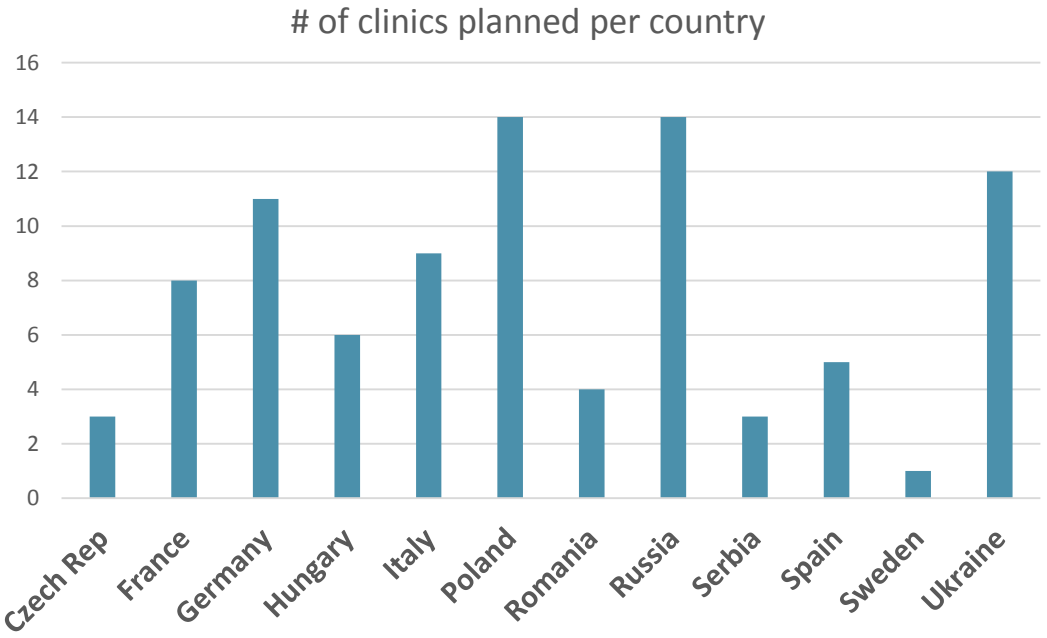
Status CONDUCT

- First patient enrolled in June, 2017
- The study is approved in 11 countries
- 78 clinics have been initiated
- Patient recruitment is developing as expected
- No safety concerns
- Objective to report top line results in Q4 2018



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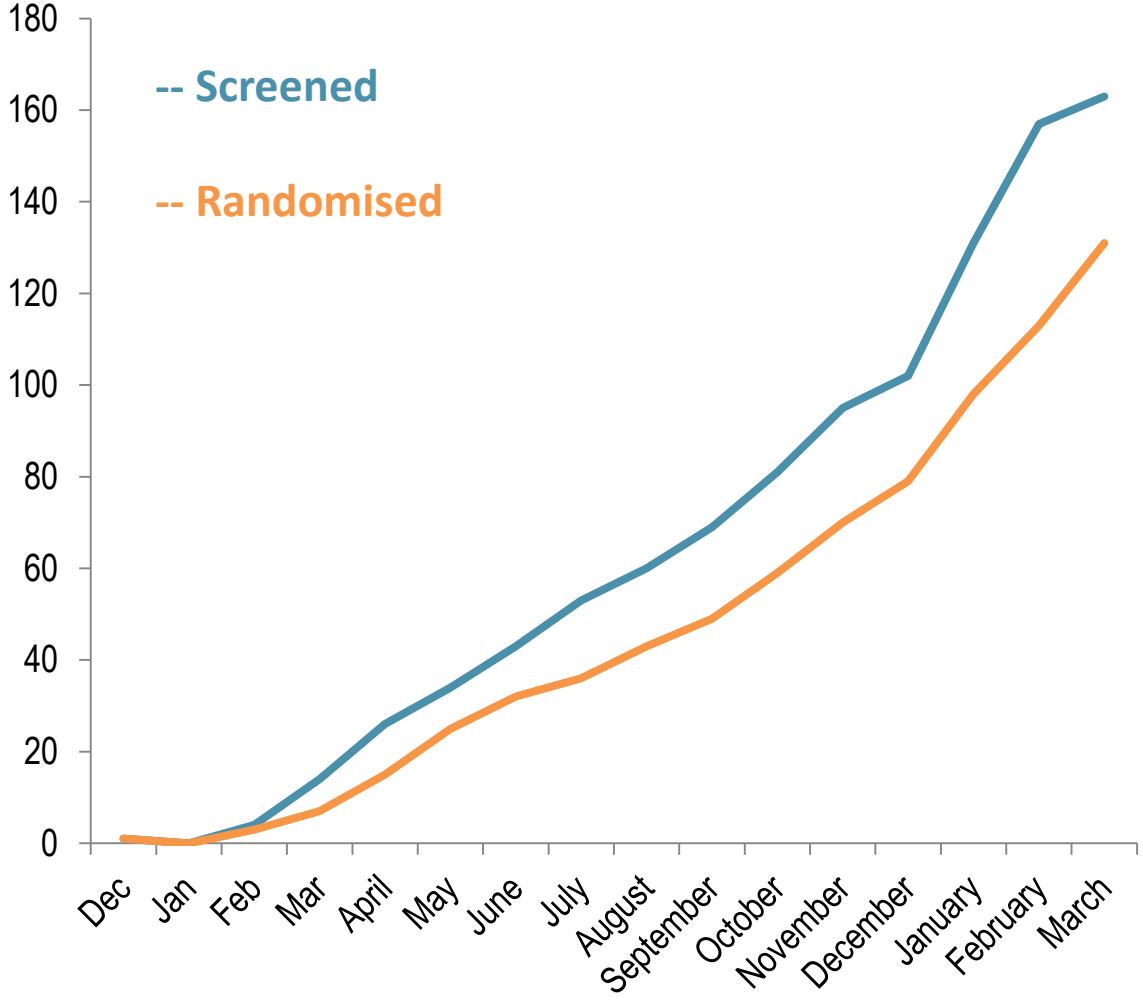
Recruitment in Previous Study COLLECT



Study Objective:
120 pts
by 31 Mar 2013

Study Achievement:
131 pts
4 Apr 2013

Study disposition:
7 European countries
38 clinics
3,4 patients/clinic

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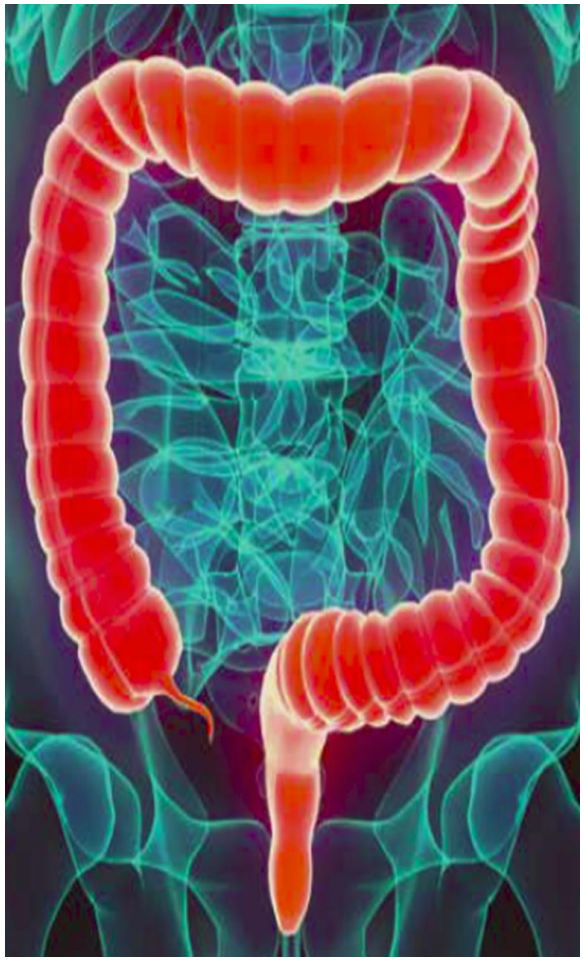

conduct

CObitolimod as **N**ovel **D**NA-based
Ulcerative **C**olitis **T**reatment

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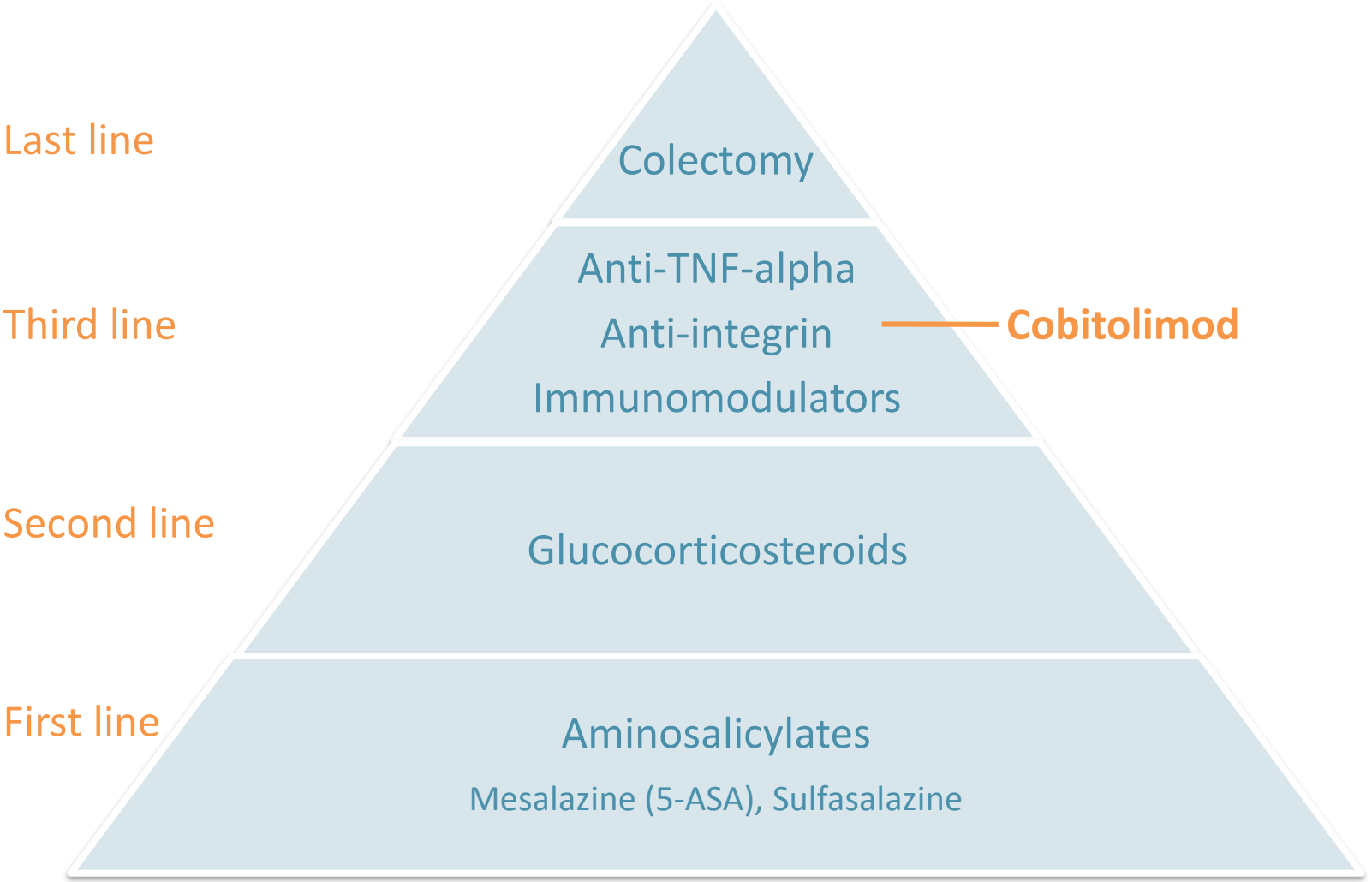
Cobitolimod's market potential

Peter Zerhouni
CEO
InDex Pharmaceuticals

Current Treatment Paradigm for Ulcerative Colitis



Clear Need for Safer and More Efficacious Drugs in Moderate to Severe UC

- Current biologics provide limited efficacy and have problems with tolerance and severe side effects
  - Anti-TNF-alpha (infliximab, adalimumab, golimumab) and anti-integrin antibodies (vedolizumab)
  - Deltas of 9-12% in phase III (remission rates for active drug versus placebo)
- >$5 Bn per year of biologics sales globally in UC alone
  - >200,000 UC patients globally receive treatment with biologics
  - Average cost of $20,000 per patient per year
- Assets in late stage pipeline have deltas of 10-20%
  - Several have increased risk of severe side effects

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Late Stage Pipeline for Moderate to Severe UC

MECHANISM OF ACTION	SUBSTANCES IN PHASE IIB/III	COMPANY	EFFECT (DELTA) CLINICAL REMISSION	SAFETY
Anti-integrin	Etrolizumab	Roche	21%	
	SHP647	Shire	14%	
	AJM300	EA Pharma/Kissei	20%	
JAK inhibitor	Tofacitinib	Pfizer	10-13%	Infections, lymphoma, black box warning
	Upadacitinib	Abbvie	-	Not reported
	Filgotinib	Galapagos/Gilead	-	Not reported
	PF-06700841	Pfizer	-	Not reported
	PF-06651600	Pfizer	-	Not reported
S1P1R modulator	Ozanimod	Celgene	10%	Mild heart rate effect, elevated liver transaminase
	Estrasimod	Arena Pharmaceuticals	18.5%	
Anti-IL-12 & IL-23	Ustekinumab	Janssen	-	Infections, cancer, RPLS
	LY3074828	Lilly	-	Not reported
	Risankizumab	Abbvie	-	Not reported
PDE4 inhibitor	Apremilast	Celgene	17.8% (TNF naive)	Diarrhea, nausea
TLR9 agonist	Cobitolimod	InDex Pharmaceuticals	15%	

Cobitolimod – InDex's Lead Drug Candidate

- Cobitolimod has novel and unique mechanism of action
- Cobitolimod has achieved clinical proof of concept with higher efficacy than biologics and a superior safety profile
- Local treatment, provides rapid onset of action
- Dose optimisation study aimed to provide substantially higher efficacy while maintaining the excellent safety profile

Cobitolimod has high market potential as a safer and more efficacious alternative to biologics

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What is Expected from New Drugs for IBD? What can We Expect from Cobitolimod?

- Different Mechanism of Action ☑
- Better rates of inducing clinical remission ☑
- Less “loss of response” in responders ☑
- Efficacy in primary/secondary non-responders to anti-TNF ☑
- Evidence of efficacy and safety in combination therapy ☑
- Less immunogenicity ☑
- Less risk of infection ☑
- Less risk of general immunosuppression ☑
- Agents with limited ability to cross the placental barrier ☑

Source: D’Haens, UEGW 2014

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Stable Drug Product with Competitive COGS

- Cobitolimod has a less complex manufacturing process than biologics, allowing for a competitive Cost Of Goods
- Synthetic oligonucleotide formulated in aqueous solution
- Intended storage condition is 5°C (current shelf life 36 months)
- Administered rectally as 50 ml solution to the site of inflammation
  - Physician administered in the CONDUCT study
  - Potential for a patient administered enema in phase III
- Oral formulation is being investigated as a follow-on for Life Cycle Management purposes

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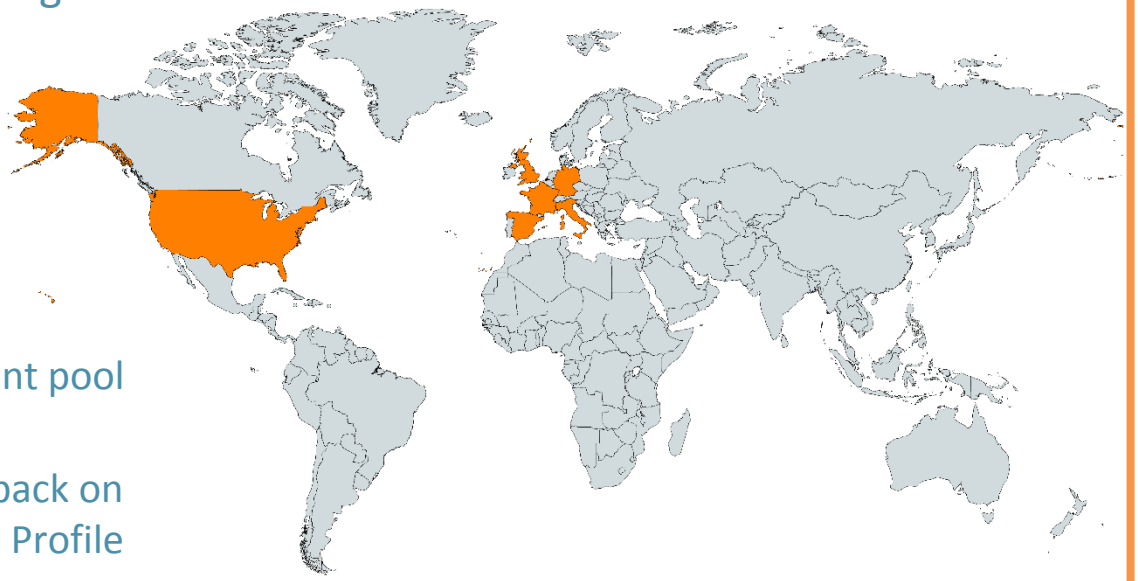
Primary Market Research Supports Product Profile

- InDex contracted with an expert consultancy in the field for a first wave primary market research study in the US and EU big 5
- Total of 148 patient responses received and 65 physician interviews
- Objectives
  - Gain insights on current UC patient pool and treatment choices
  - Test reaction to and gather feedback on draft cobitolimod Target Product Profile
  - Understand initial views on proposed formulation and mode of administration



- Overall response from physicians and patients to the product profile presented was positive
- Features such as *fast onset of action, efficacy, and tolerability* scored very highly

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Cobitolimod has a Strong IP Position

KEY PATENT FAMILIES	GEOGRAPHIC AREA	STATUS	EXPIRE	PTE/SPC
Patent family 1	US/EP/JP	**Granted**	2026/2027	5 years
Patent family 2	US/EP/JP/AUS/CA	**Granted**	2026/2027	5 years
Patent family 3	US/EP/JP/CA	**Granted US/JP** Pending EP/CA	2032	5 years

- IP protection beyond 2030 in main markets
- InDex is pursuing additional IP opportunities
- In addition, cobitolimod will be subject to data protection as a new chemical entity
  - 10 years from market approval in Europe
  - 5 years from market approval in the US
  - 8 years from market approval in Japan

InDex Business Development

- Strategy to partner cobitolimod prior to phase III
  - Resources and expertise for phase III, registration and commercialisation
  - Upfront, milstones, royalty
- Planning for start of phase III in 2019
- Active business development effort
  - CEO, Senior BD Consultant, BD Manager, CMO
- Participate at main partnering conferences in US, Europe and Japan
- Presentations/posters at main GI/IBD congresses in US and Europe
- Clear demand from industry for promising assets within IBD
- Have established good contact with potential partners within the therapeutic areas of GI and inflammation/autoimmune

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IBD is a High Value Indication

	RECENT DEALS IN IBD/INFLAMMATION				
DATE	COMPANY	PARTNER	COMPOUND	COMPLETED CLINICAL PHASE	TERMS
April 2014	Nogra Pharma	Celgene	Mongersen	Phase II	$710 million upfront + $1.9 billion milestones + royalty
July 2015	Receptos	Celgene	Ozanimod	Phase II	$7.2 billion (aquisition)
Sept 2015	Galapagos	Gilead	Filgotinib	Phase II	$300 million upfront + $425 million equity investment + $1.35 billion milestones + tiered royalty starting at 20%
June 2016	Pfizer	Shire	SHP647	Phase II	$90 million upfront + $460 million milestones + royalty
Oct 2016	MedImmune/ Astra Zeneca	Allergan	MEDI2070	Phase IIa	$250 million upfront + $1.27 billion milestones + royalty
Feb 2018	Theravance	Johnson & Johnson	TD-1473	Phase I	$100 million upfront + $900 million milestones + royalty

InDex Strengths

BLOCKBUSTER POTENTIAL

- Ulcerative Colitis (UC) is a debilitating disease with high unmet medical need
- Annual sales of biologics in UC amounts to >USD 5 billion
- Cobitolimod has high market potential as a safer and more efficacious alternative to biologics with a novel mechanism of action

LATE STAGE CLINICAL DEVELOPMENT

- Extensive clinical experience with excellent safety profile
- Main results from phase IIb dose optimisation study expected in Q4 2018
- Potential to provide substantially higher efficacy than current industry pipeline
- Attractive asset for potential partners
- Will validate broad portfolio of other DIMS assets with potential in inflammation

EXPERIENCED BOARD & MANAGEMENT

- Board and management with extensive experience from the pharmaceutical industry and listed companies

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