



Breakthroughs in IBD Research: Helping You Today

*An educational program for patients, families
and caregivers living with IBD*



Sponsored by **Shire**

BREAKTHROUGHS in IBD

Research: Helping You Today

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Today's Goals

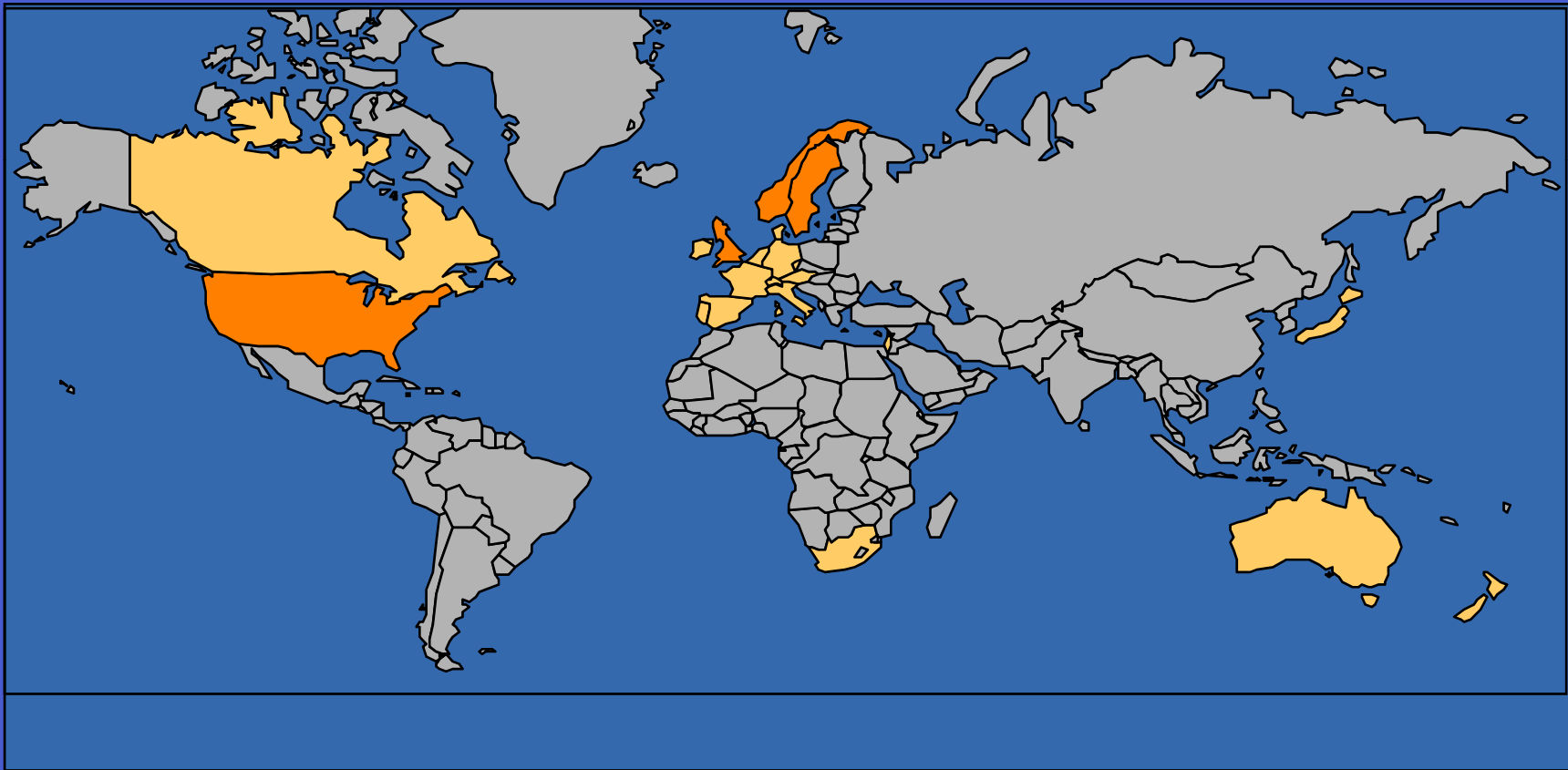
- Highlight the **Past** history of IBD research
- Understand **Today's** breakthroughs in IBD research
- Discuss the **Future** of IBD research – next steps

Goals of Research

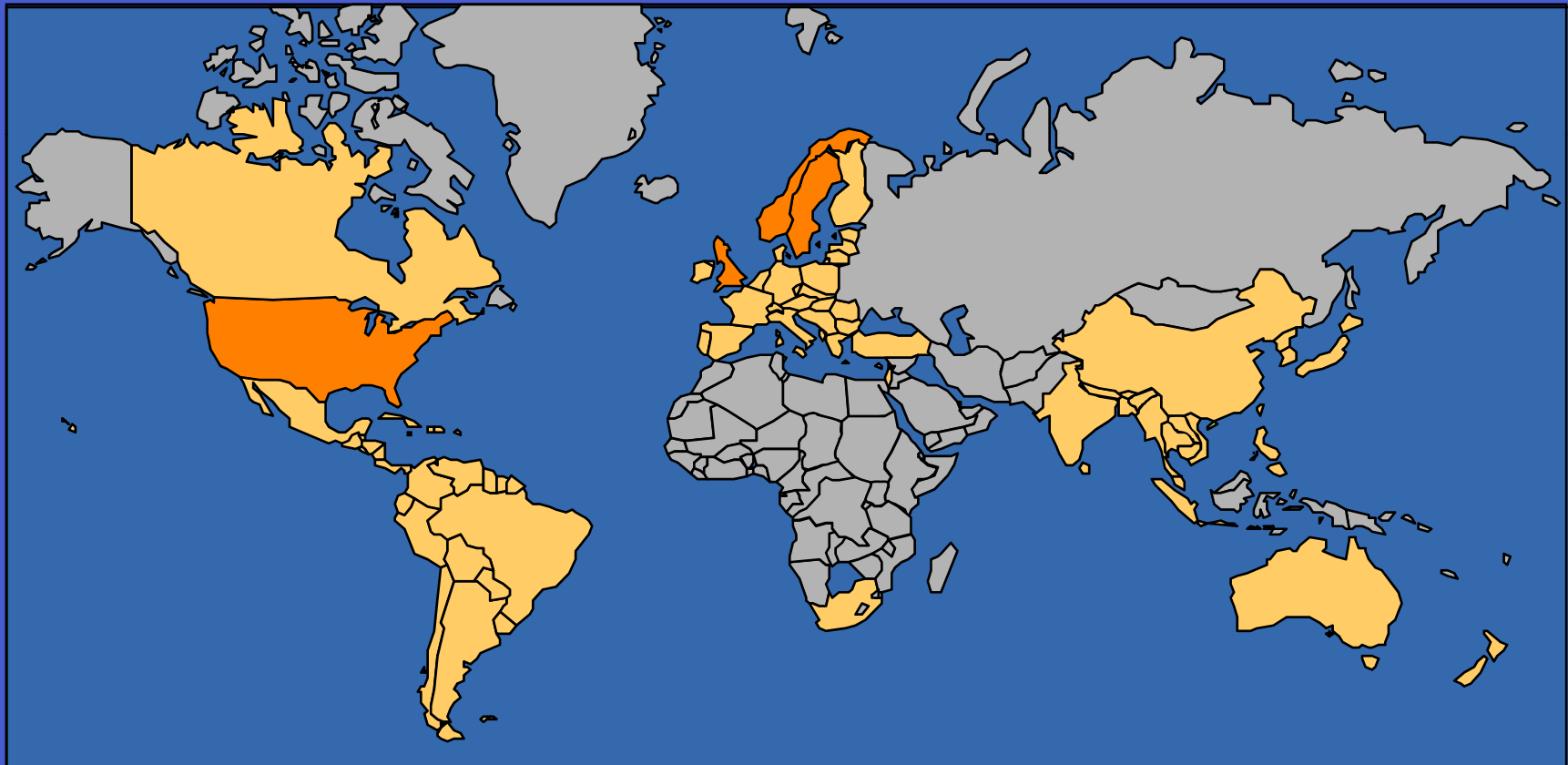
- CURE!
 - Cause & prevention
- Develop new & improved treatments
- Increase quality of life



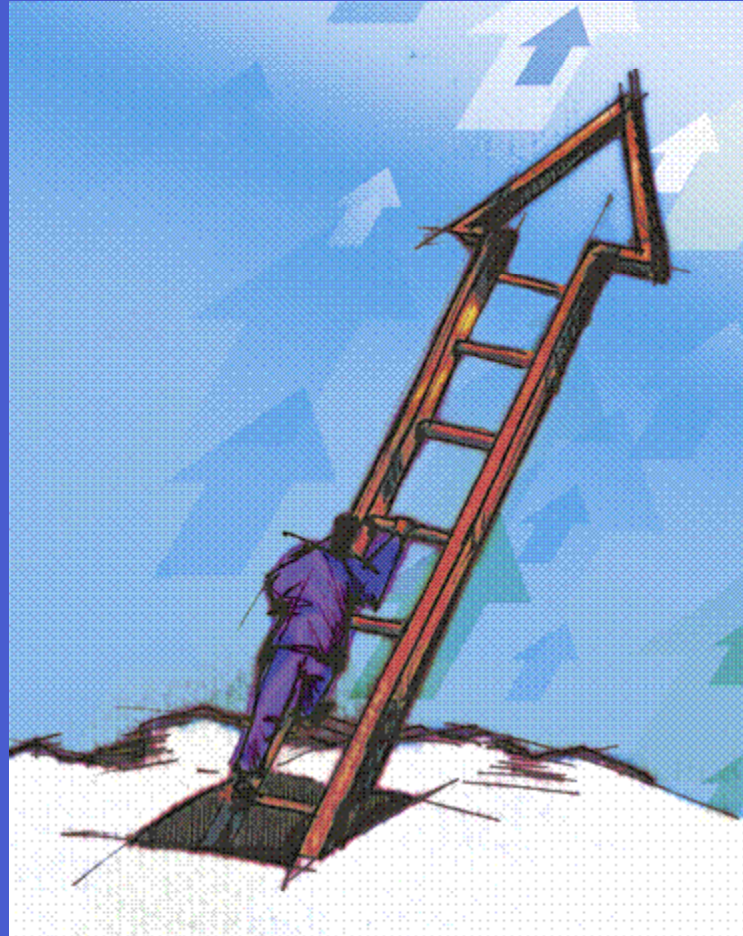
IBD Population 1956–1970



IBD Population 1970–Present



Milestones in Research



Then & Now

Then: 1967

Cancer	No surveillance
Treatment	Diet, bowel rest, steroids, sulfasalazine, antibiotics
Surgery	Ileostomy
Hospitalization	For many patients, a stay in the hospital might run into weeks or even months
Research	Minimal research was conducted in IBD

Then & Now

Now: 2010

Cancer	Routine, periodic colonoscopy
Treatment	Steroids, 5-aminosalicylic acid (5-ASA), immunomodulators, biologic therapies, antibiotics, total parenteral nutrition (TPN), enteral feeding
Pipeline	80+ treatments are currently in clinical trials
Surgery	J-pouch, laparoscopic resection, stricturoplasty
Hospitalization	Average reduced to approximately 9 days, if at all

Then & Now

Now: 2010

Research	Each year, CCFA funds more than 200 current and ongoing research grants
	Since 1967, the CCFA has supported the training of 218 Research Fellows and 122 Career Development Awards
	CCFA 1989 Challenges in IBD Agenda transformed direction and pace of IBD research around the world
	Clinical Research Alliance created
	Pediatric Research Network created
	DNA Bank created
	CCFA funded over \$150 million worth of research and been some part of each significant breakthrough, either in training the researcher, or at some point funding the research study

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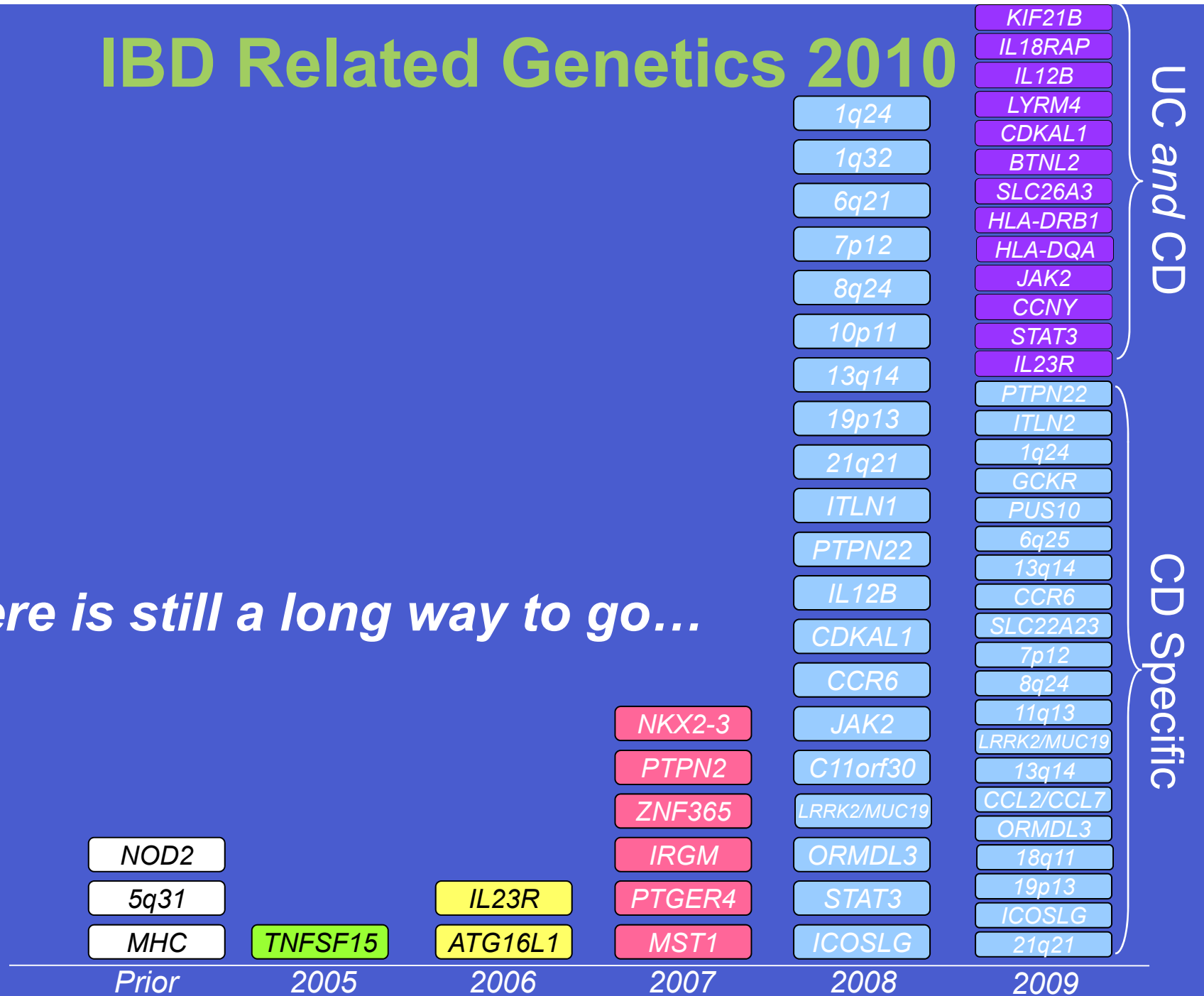
Important Breakthroughs

- Unraveling IBD-related genetics
- Importance of the IL23/17 pathway in Crohn's disease & ulcerative colitis
- Understanding the relationship of genetics and bacteria in a host



IBD Related Genetics 2010

There is still a long way to go...

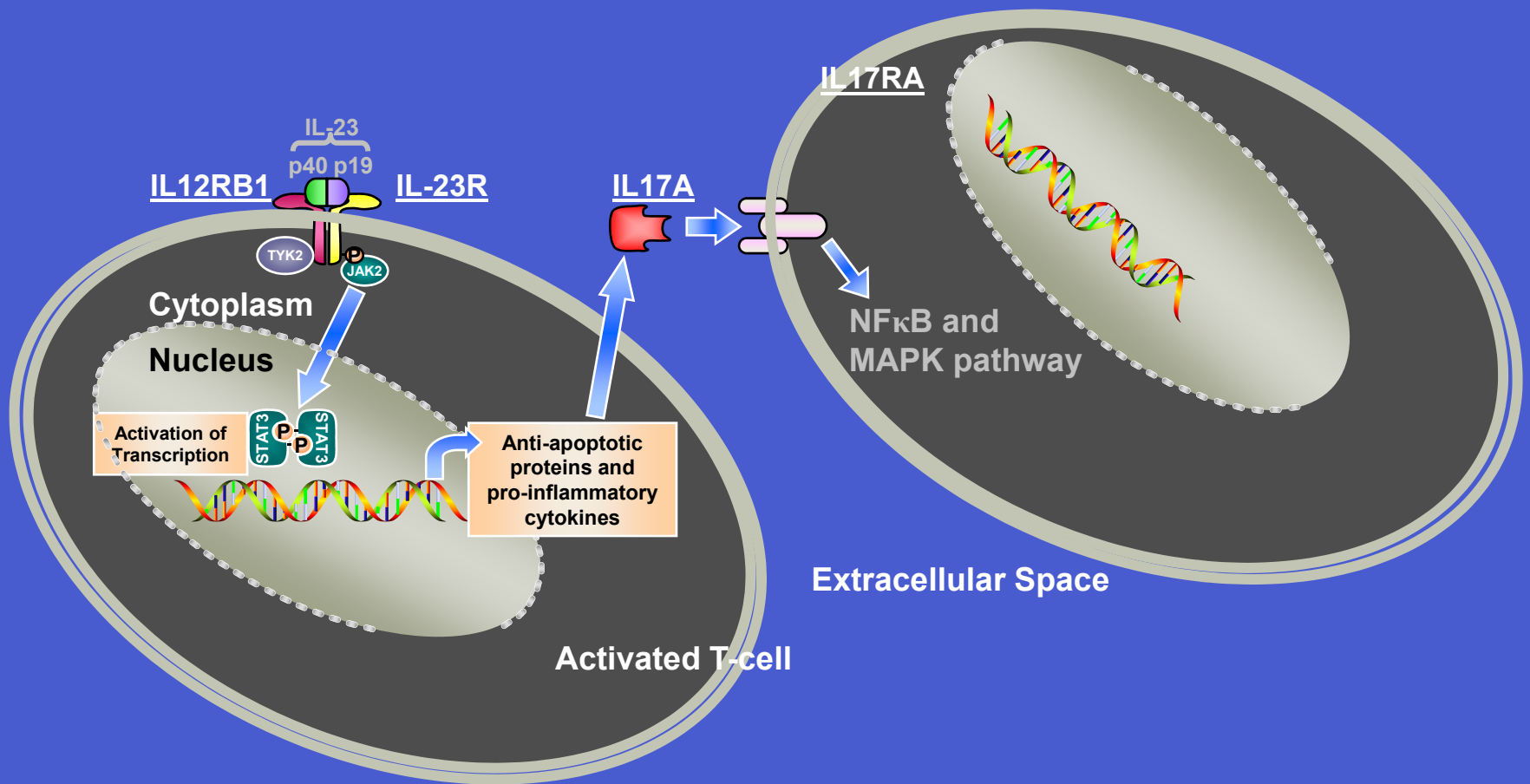


Unraveling Genetics



- Impact
 - Leap forward in understanding IBD
 - Rapid discovery of new therapeutic targets

IL23/17 Pathway Breakthrough




IL23/17 Pathway Breakthrough



- Impact

- 10–15 clinical trials focus on this pathway
- Treatment can be targeted specifically to IL23/17 pathway
- Different variants of pathway may be able to predict response or nonresponse

Understanding the Relationship of Bacteria & Genetics

- Genetics impact the types of bacteria present in a host intestine
 - Population of bacteria in the gut impact the host metabolically
- 
- Impact
 - Specialized treatments and therapies to manipulate an individual's vast array of bacteria

Breakthroughs in Current Areas of Study

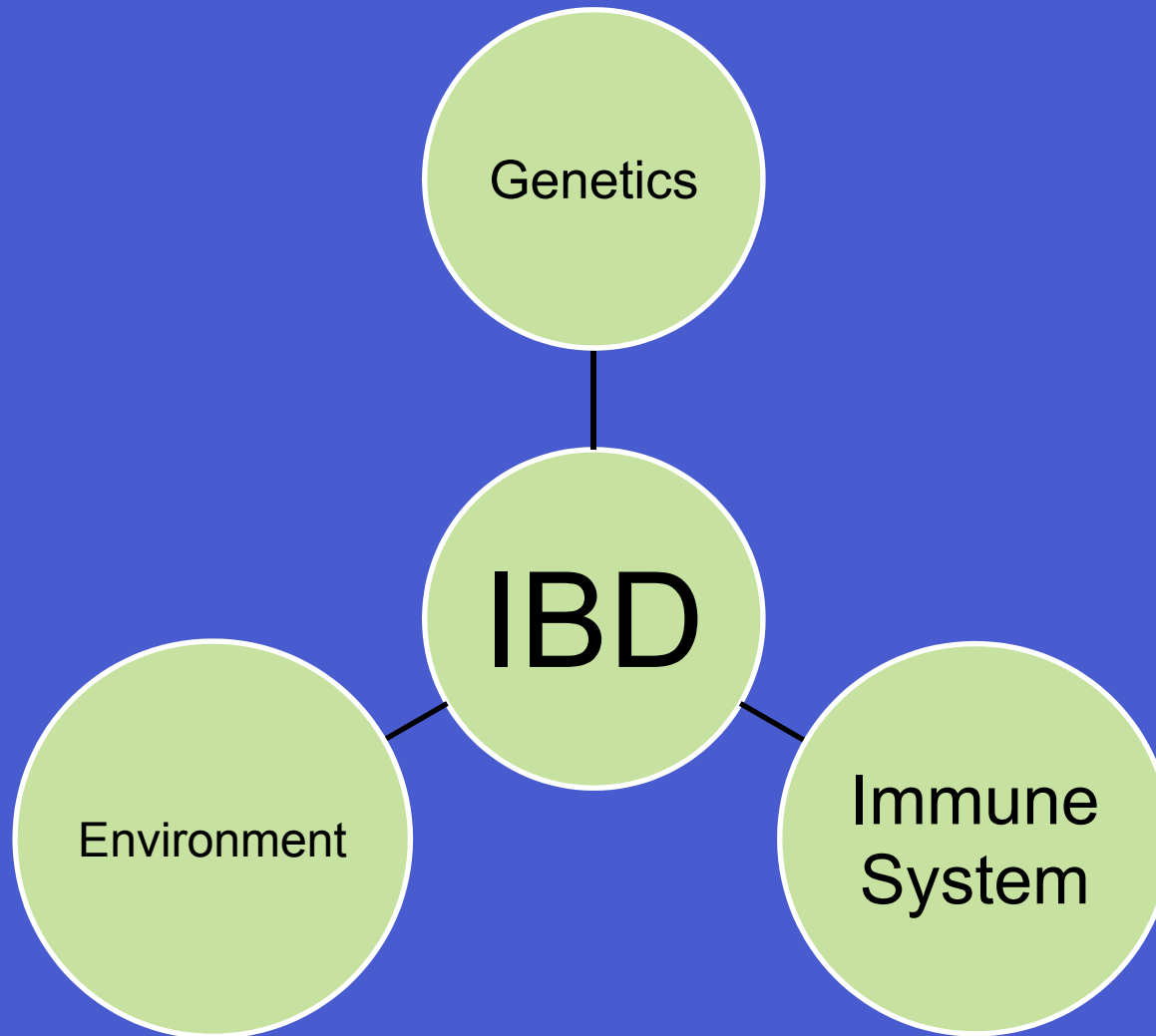


Current Areas of Study

- Causation Factors
 - Genetics
 - Immunology
 - Microbiology
 - Environment
- Diagnosis
- Treatment
- Pediatrics

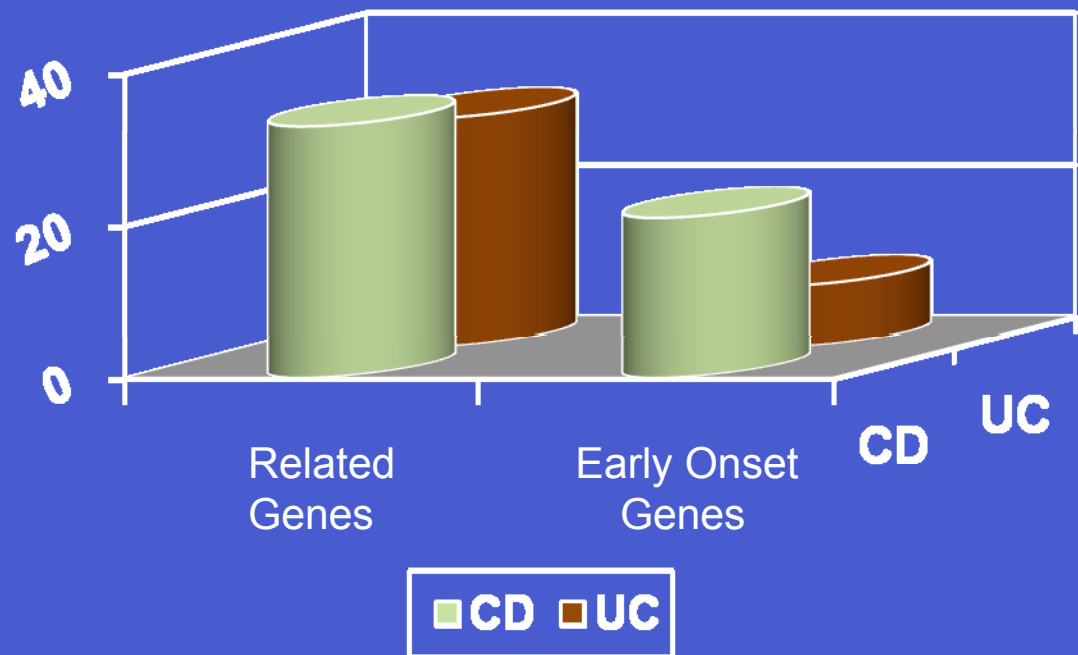


Causation Factors



Genetics

- Current research:
 - Roles of genes in IBD
 - Mapping the IBD genome
 - Disease progression
 - Disease severity
 - Gene mutations
 - Reaction to medical treatments



Genetics



Dark ages → Genetic revolution

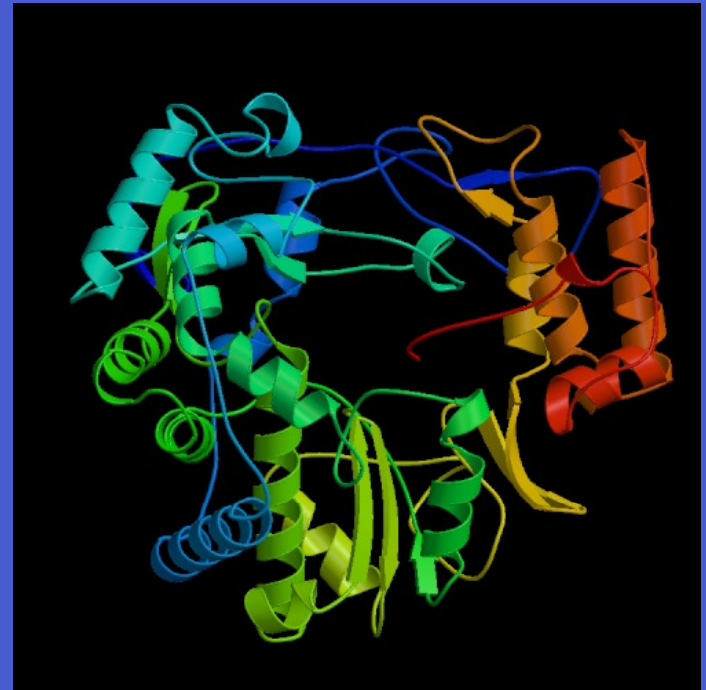
- 1940/50 – Familial association
- 1994 – HLA association
- 1996 – Familial pattern
- 1996 – Chromosome 16
- 1996 – Chromosomes 3, 7,12

Genetic explosion

- 2001 – NOD 2
- 2001 – IBD/5 (OCTN)
- 2006 – MDR1, IL-23R
- 2007 – ATG16L1, NCF4, PHOX2B
- 2008 – XBP1
- 2010 – 20 CD specific genes/
13 UC specific genes

Immunology: Study of the Immune System

- Immunological biomarkers: markers in the blood, stool and other bio-matter
 - Identify subsets of IBD
 - Determine disease characteristics in children



Immunology



- Antibody biomarkers
 - IBD patients have antibodies to normal bacteria in the body
 - Associated with types of inflammation response – DO NOT cause inflammation
 - May increase risk for:
 - Early onset
 - Aggressive disease

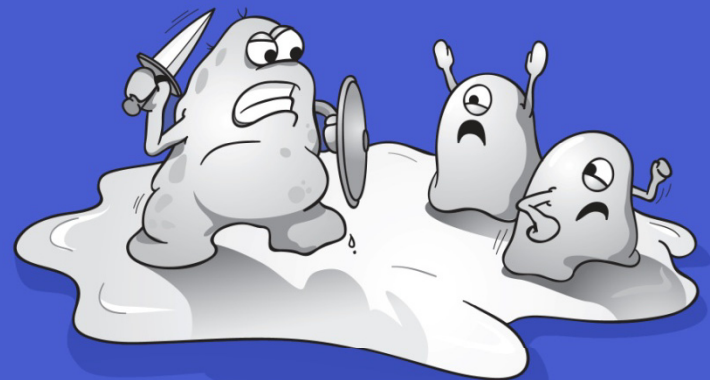
Microbiology: Study of Microbial Community (Microbiome)

(Parasites, Viruses & Bacteria)

- Beneficial bacteria (probiotics & prebiotics)
 - Promote intestinal cell healing
 - Stimulate anti-inflammatory antigens
 - Inhibit pro-inflammatory cytokine production

VS

- Harmful bacteria
 - Cause diseases
 - Cause inflammation



Microbiology: Probiotics



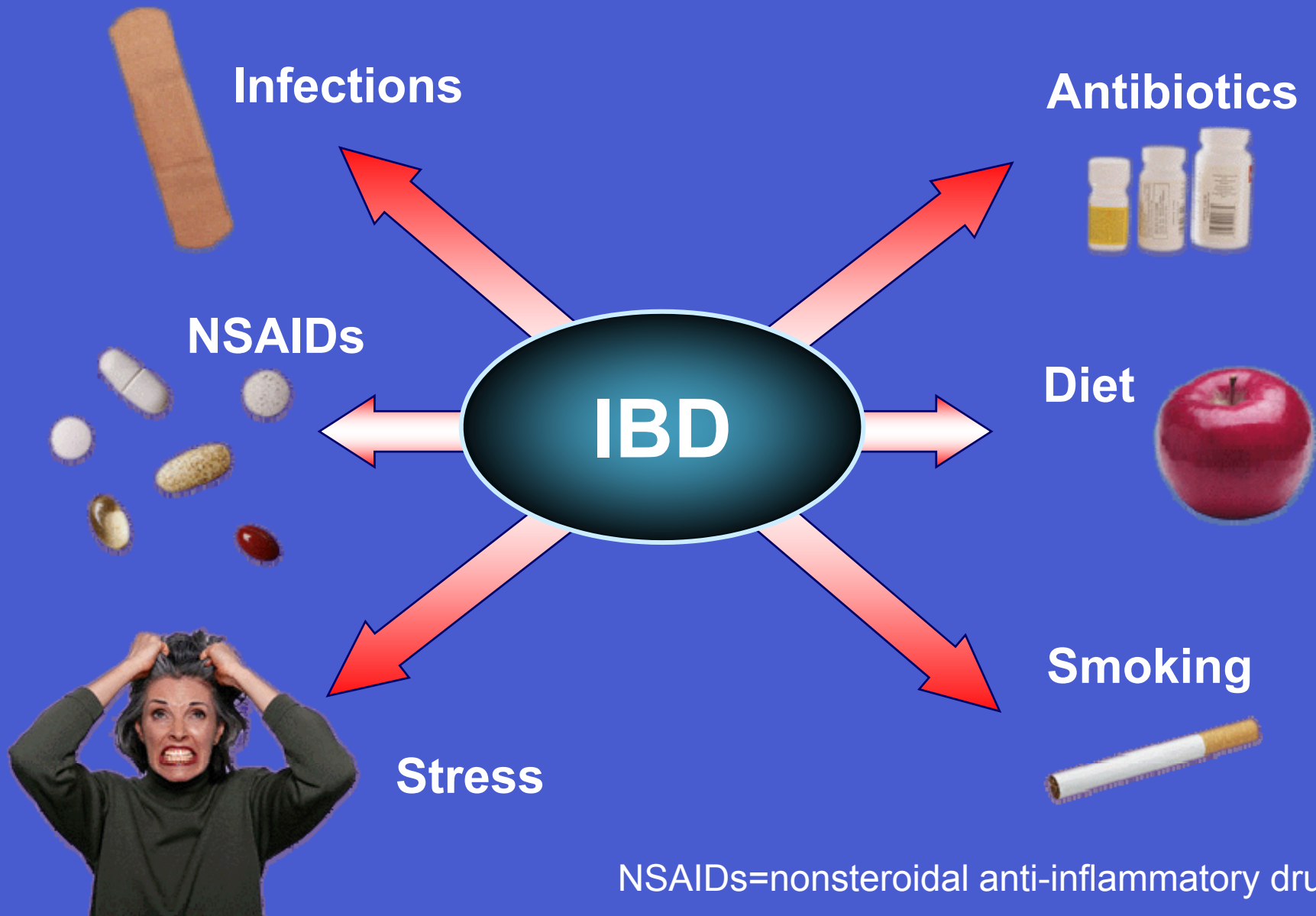
- *Escherichia coli*
 - Inducing and maintaining remission as mesalamine in patients with UC, also similar side effect profile
- *Lactobacillus*
 - Anti-inflammatory effects
- *Saccharomyces boulardii*
 - Decrease in relapse of Crohn's disease
 - Risk of fungemia
- *Bifidobacterium*
 - Fermented milk may decrease symptoms in patients with CD

***Probiotics & prebiotics studies continue.
Consult your doctor when using
individually, or ideally, look for a clinical
trial.***

Microbiology: Bacteria

- *Mycobacterium avium paratuberculosis* (MAP)
 - Found in milk
 - Does not appear to play a role in the etiology of Crohn's disease

Environmental Triggers



NSAIDs=nonsteroidal anti-inflammatory drugs.

Diagnosis



1967

- Barium enema
- Rigid sigmoidoscopy
- Small bowel x-ray

2010

- Colonoscopy
- Capsule endoscopy
- CT
- MRI
- Serologic panel
- Virtual colonoscopy

Treatments

History of IBD Treatments



Treatments

- Biologic therapies target specific proteins and enzymes in the immune system relating to the body's inflammatory response
- Targeted outcomes
 - Sustained remissions
 - Steroid sparing
 - Mucosal healing
 - Reduction in hospitalizations & surgeries
 - Improved quality of life

Pediatrics



- CCFA Pediatric Network
- Preventing growth issues
 - Immunomodulatory treatments act as surgery sparing
 - Limit steroids
 - Enteral nutrition in CD
- Treatments
 - Biologic agents hold promise of growth enhancement
- Surgery
 - Steroids increase risk for surgery



What does this all mean to me?



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Problem 2010

Too Many Targets

Not enough Patients

Clinical Trials

- Clinical trials study: treatment, prevention, diagnostics, screening and quality of life
- Clinical trials are studied in phases
 - Phase I trials:
 - What method of drug delivery and dosage is safest?
 - What are the drug's side effects?
 - Phase II trials:
 - Is the drug effective in treating IBD?
 - Phase III trials:
 - Is the drug more effective and/or does it have fewer side effects than the current standard treatment?
 - Phase IV trials:
 - Ongoing research to gain additional information including the drug's risks, benefits, and optimal use

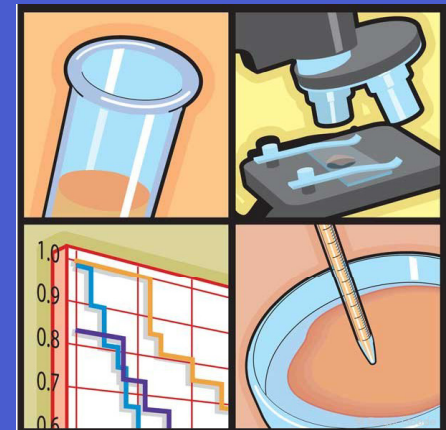
Clinical Trials: Risks & Benefits

Risks

- Test treatments may not be as effective as standard treatment
- May receive a placebo
- May require more of your time and attention
- All costs may not be covered

Benefits

- Be an active participant in your care
- Gain access to new treatments
- Obtain expert medical care
- Help others



Clinical Trials

- Talk to your doctor about clinical trials as a treatment option
- Find a clinical trial
 - Call CCFA's Information Resource Center
888.MY.GUT.PAIN
 - Visit: www.ccfa.org/clinicaltrials
 - Visit: www.clinicaltrials.gov

Why Do We Need More Research?

Although we have made very significant advances...

- There are many forms of these diseases, so there will not be just one cure
- We need to expand our understanding of the essential nature of Crohn's and colitis
- We need to develop innovative treatments to induce remission, prevent relapses, prevent complications
- Science and technology are poised to make rapid progress – and that progress will depend on the amount of support & funding available



Question and Answer Session