



# IDENTIFICATION OF CD1A AS A DIAGNOSTIC MARKER AND THERAPEUTIC TARGET FOR CHRONIC INFLAMMATORY DISEASES

Dr. Roswitha Gropp | Klinikum der Universität München | 23.April 2018



- Identification and validation of novel therapeutic targets for chronic inflammatory bowel diseases (IBD).
- Development of individualized and phase dependent therapies for IBD.

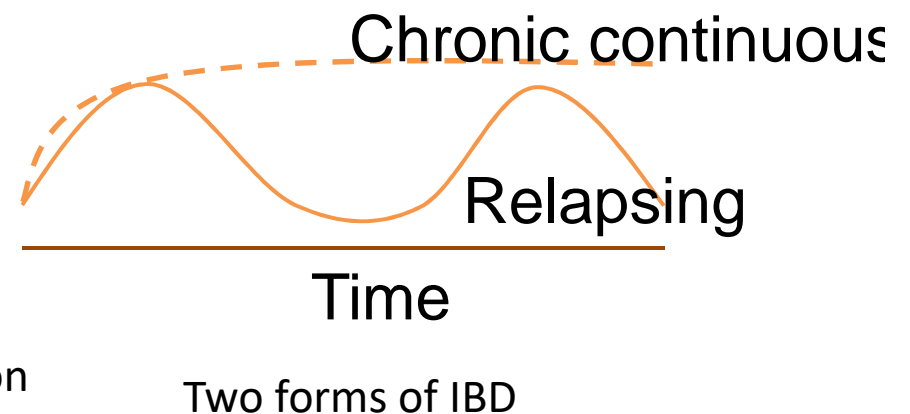
# Inflammatory bowel diseases (IBD) Manifestation



IBD is an umbrella diagnosis covering two major forms:  
**Crohn's disease** and **Ulcerative Colitis**

IBD is characterized by:

- Abdominal pain,
- severe diarrhea,
- blood loss and
- progressive loss of peristaltic function



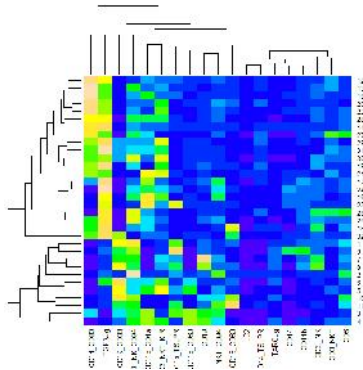


- Requires life-long medication
- Treatment accompanied by severe side effects
- 40% of patients refractory to treatment
- Colectomy last resort but no cure (only for UC)
- Life long impact on patient's lives
- Young patient population in full swing of their professional and private lives
- Instills social stigma

# Novel Approach: HuCID platforms

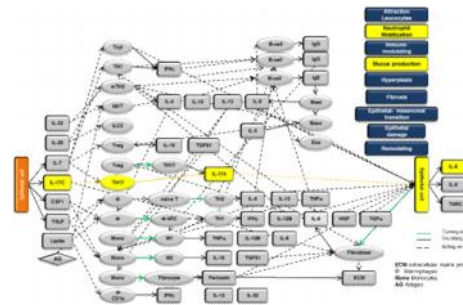


## HuCID Screen



Identification of novel therapeutics  
Stratification of patients

## HuCID Disease Map



Prediction of mechanistic side effects

## HuCID Animal Model

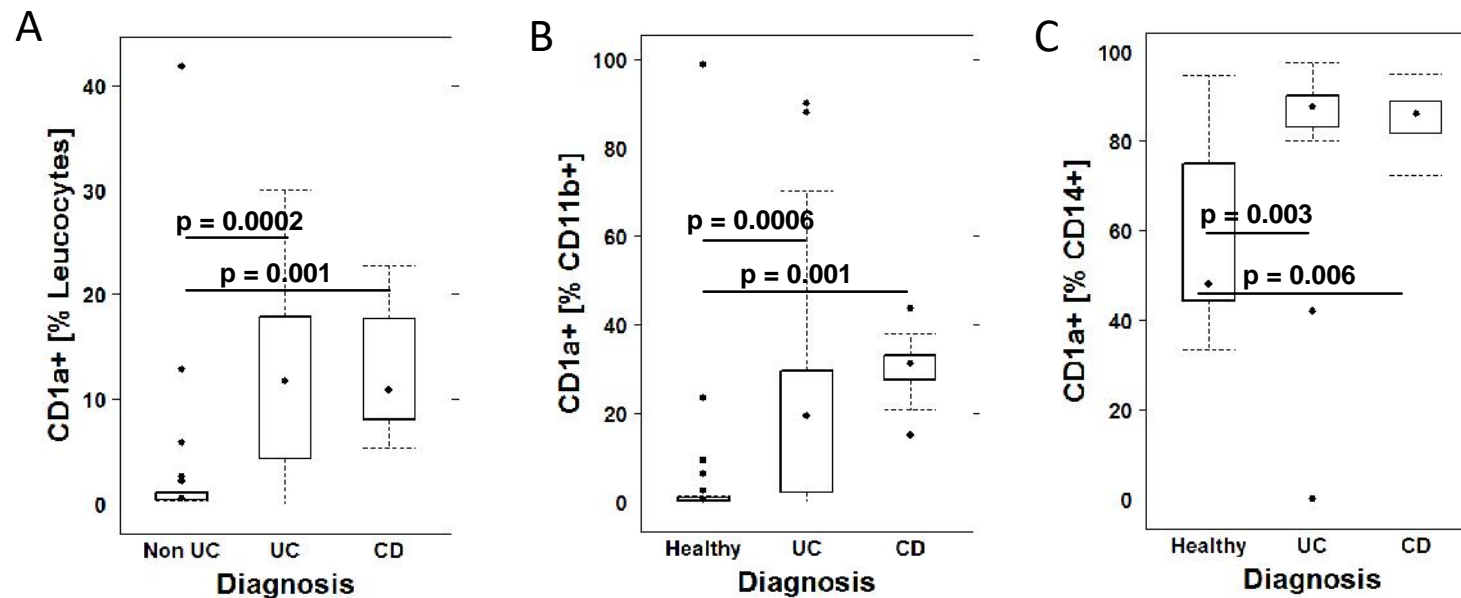


Higher translatability to  
clinical trials

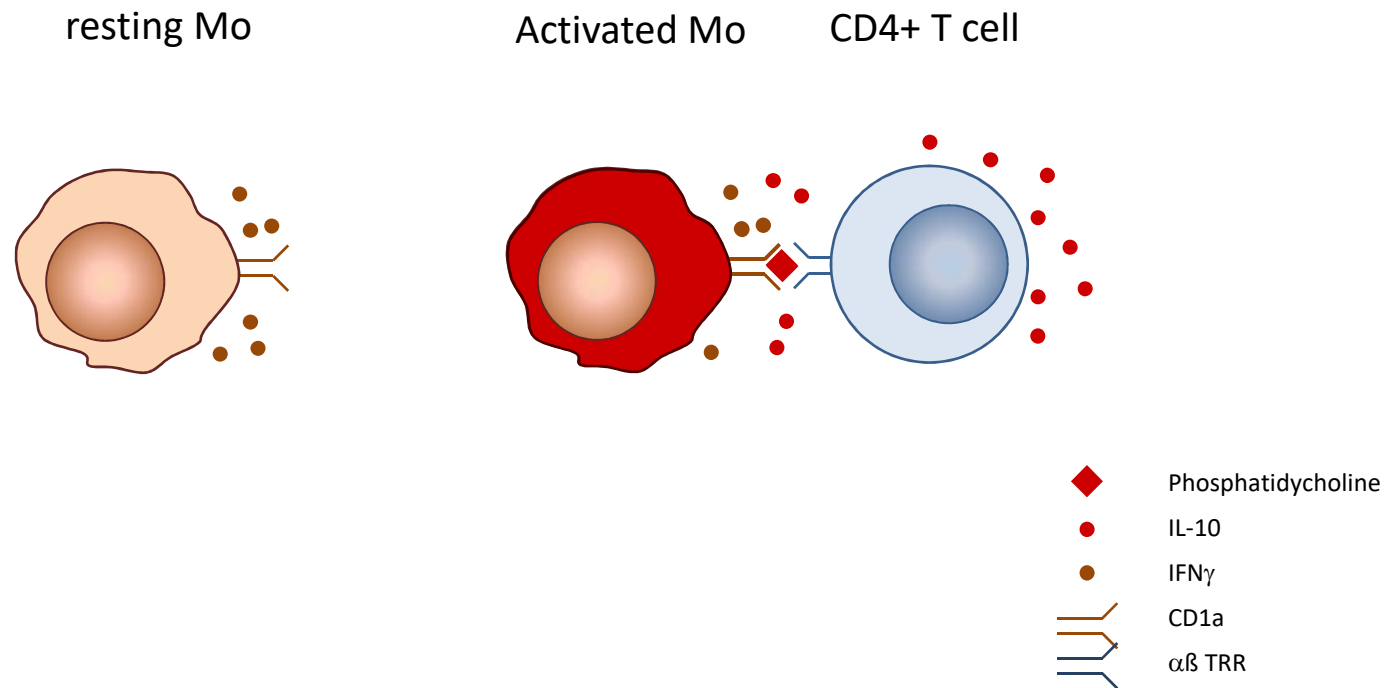
**Risk reduction in clinical development**



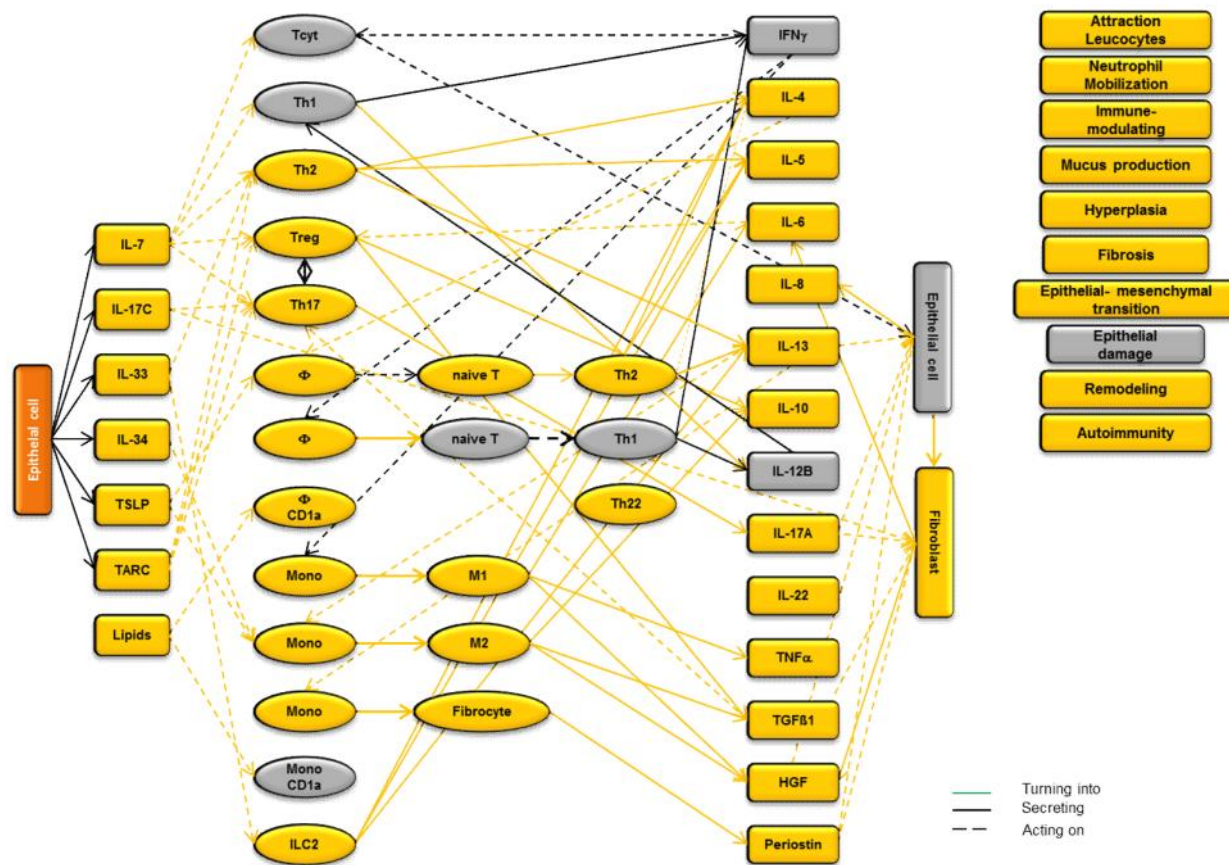
## Identification of CD1a Expressing Monocytes as Biological Markers of IBD



# CD1a+ Monocytes as Sensors and Mediators of Inflammation



# HuCID Disease Map Predicted Efficacy

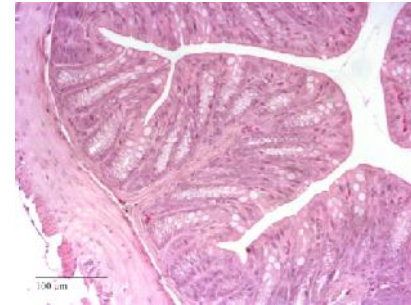




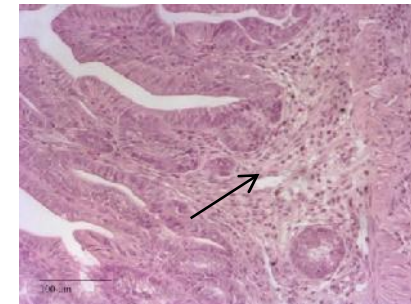
# HuCID Mouse Model: Proof of Concept Study Treatment with anti CD1a antibodies



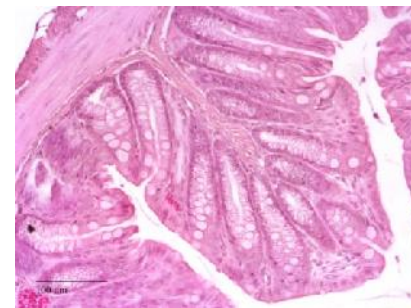
Control



Challenge



Challenge + anti CD1a





- **Prevalence: 2.5–3 million people in Europe and 3.1 million people in USA are affected by IBD**
- **Present health care costs: \$ 8.5 billion in 2016**
- **Prospected health care costs (2020): \$ 9.5 billion / year.**
- **Targeted group:** Patients refractory to current treatment with TNF $\alpha$  inhibitors
- **Cautious estimate: € 1 bn /year**

## Unique Selling Point for anti CD1a antibody



**Novel** target addressing inflammatory monocytes  
Improved side effects

Product	Target	MOI	Application	Side effects	Development
Adalimumab Infliximab Golimumab	TNF $\alpha$	mab	subcutaneous intravenous	Serious infections	approved
Vedolizumab	Integrin $\alpha$ -4 $\beta$ 7	mab	intravenous	infections	approved
Tofacitinib	JAK Kinase	small molecule	oral	Serious infections	Expected approval Q4 2018
<b>Anti CD1a</b>	<b>CD1a+ Mo</b>	<b>mab</b>	<b>intravenous</b>	<b>Improved side effect profile</b>	<b>preclinical</b>

## Resources Needed



### Next steps:

- Phase II study in HuCID animal model with commercially available antibody
- Development of HTS assay for antibody screening
- Development of proprietary antibody directed against CD1a

Working Package	Personnel costs (€)	Consumerables (€)	F&E (€)	Time (month)
Animal Trials	148.000	130.000		20
HTS assay	34.000	10.000		4
Antibody			50.000	
<b>Sum</b>	<b>182.000</b>	<b>140.000</b>	<b>50.000</b>	<b>20</b>
<b>Costs total (€)</b>	<b>372.000</b>			

**Thank you for your attention!**



**Meet us at poster B1**

**Scientific expertise**



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