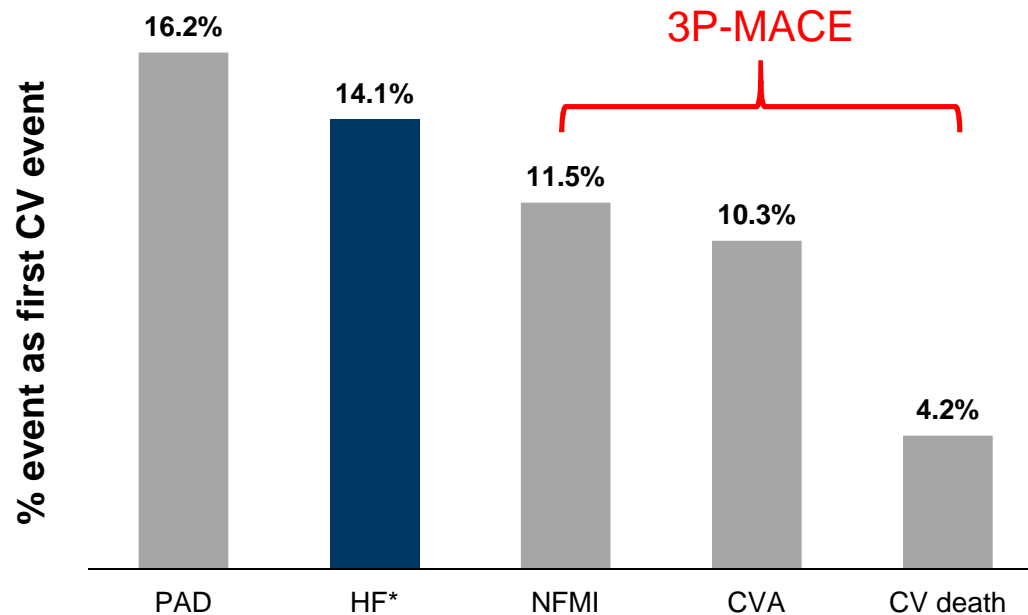


Diabetes mellitus Typ 1, Typ 2 –
zwei verschiedene Erkrankungen?

HF occurs earlier than MI or stroke as a T2DM complication

Cohort study of patients (n= 1.9 million) with T2DM and incidence of CV disease

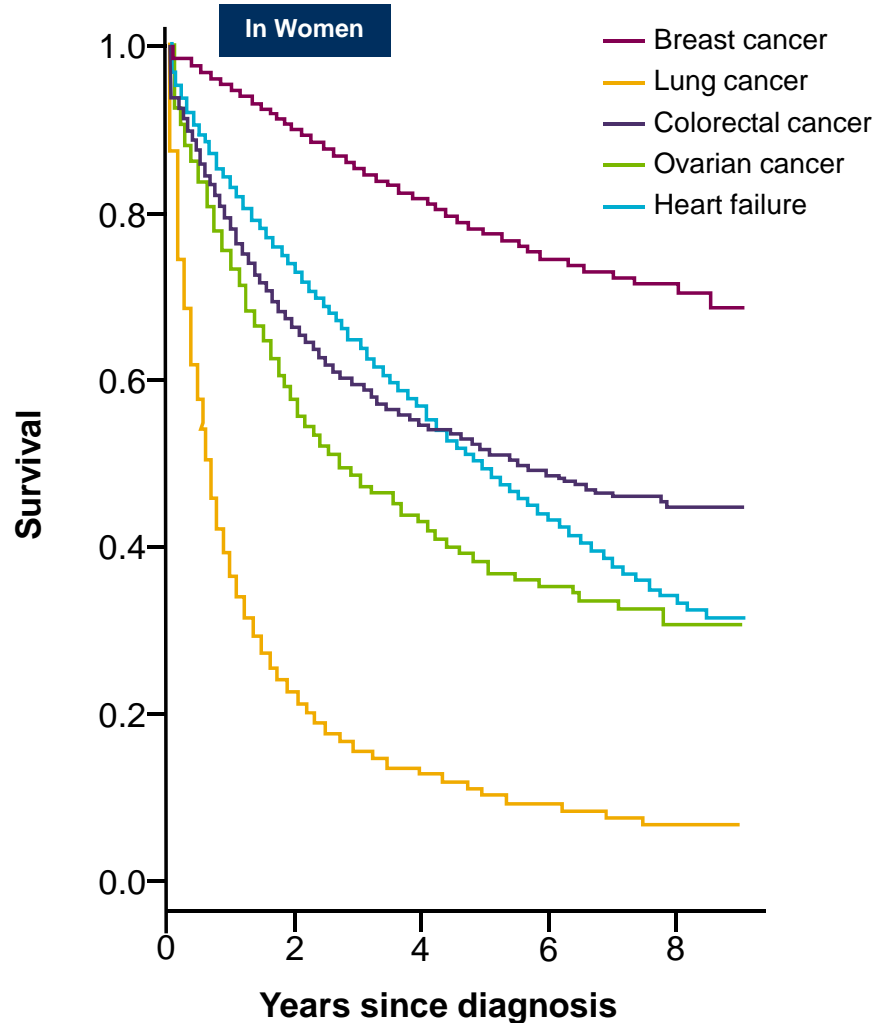
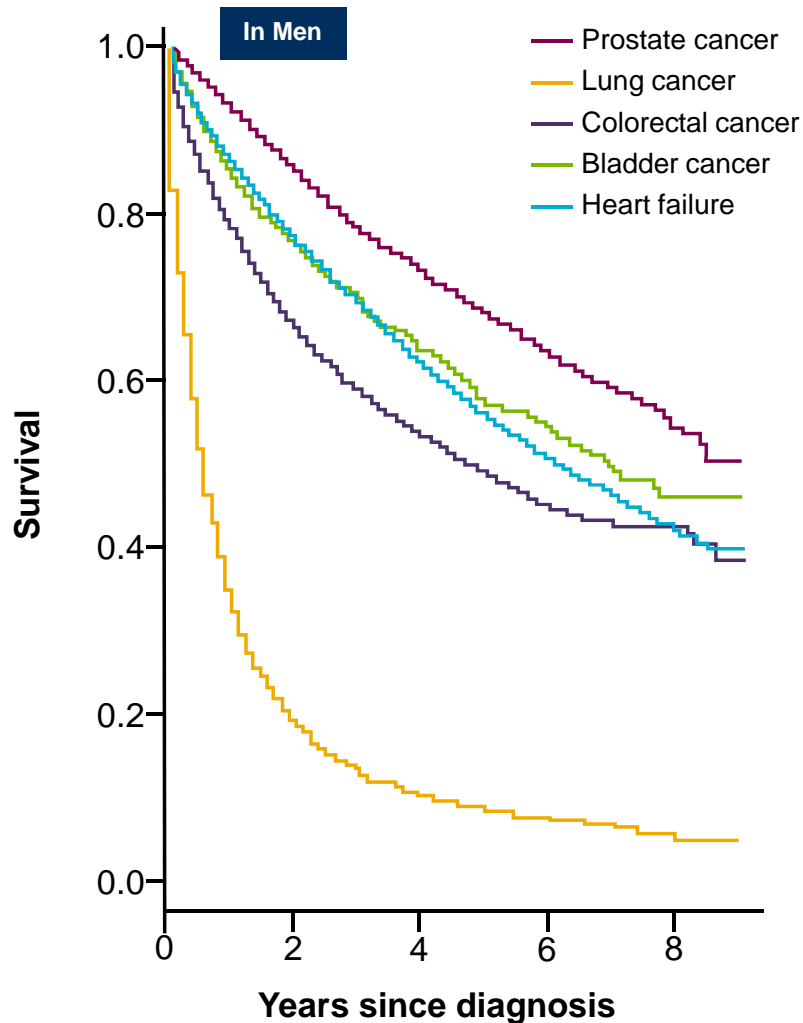


*Heart failure post MI was not included in this definition of HF

CV, cardiovascular; CVA, cerebrovascular accident; HF, heart failure; NFMI, nonfatal myocardial infarction; PAD, peripheral arterial disease; T2D, type 2 diabetes.

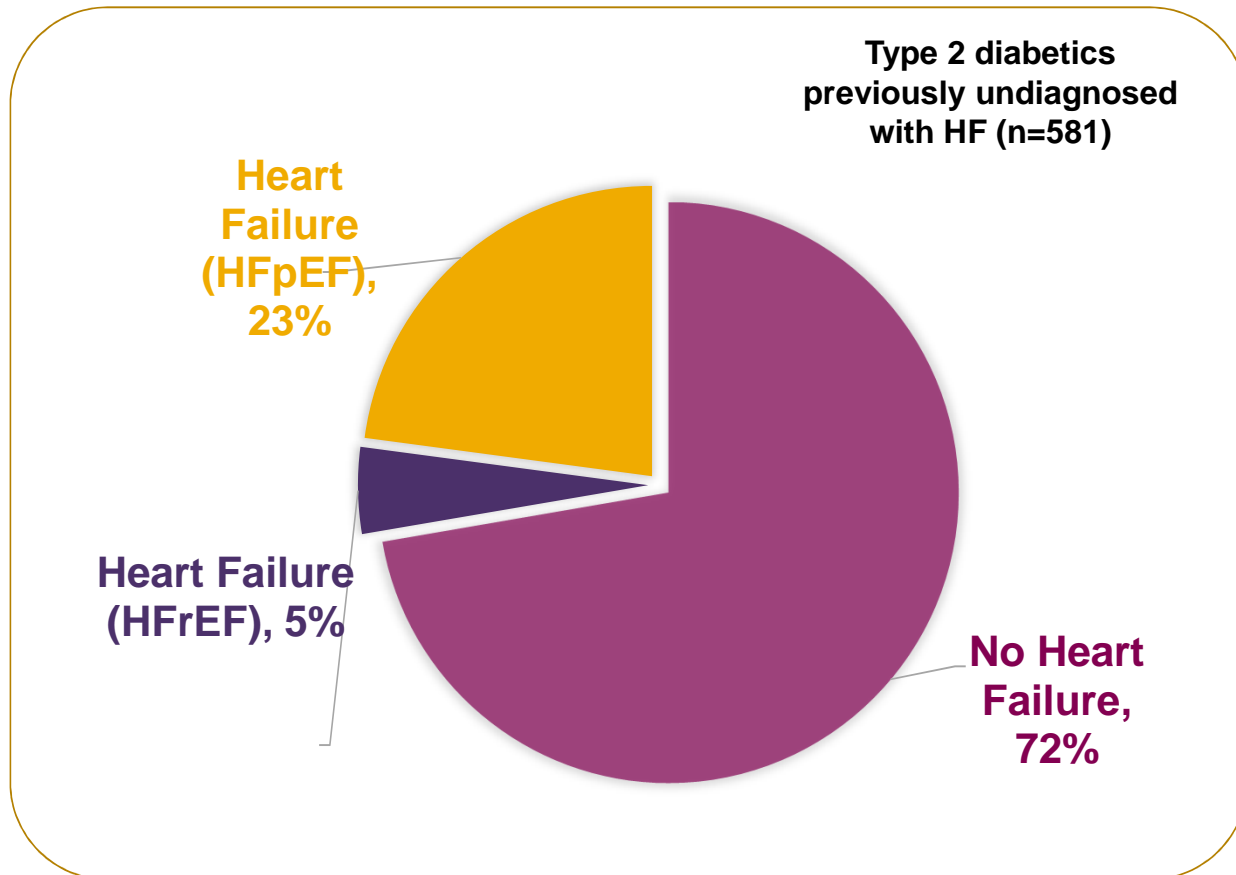
Shah AD, et al. Type 2 diabetes and incidence of cardiovascular diseases: a cohort study in 1.9 million people. Lancet Diabetes Endocrinol. 2015;3:105-113, Appendix.

Despite advances in management, HF as 'malignant' as cancer



HF, heart failure
 Mamas MA. et al. Do patients have worse outcomes in heart failure than in cancer? A primary care-based cohort study with 10-year follow-up in Scotland *Eur J of Heart Failure* 2017.19:1095–1104

High Prevalence of Undiagnosed Heart Failure in T2DM



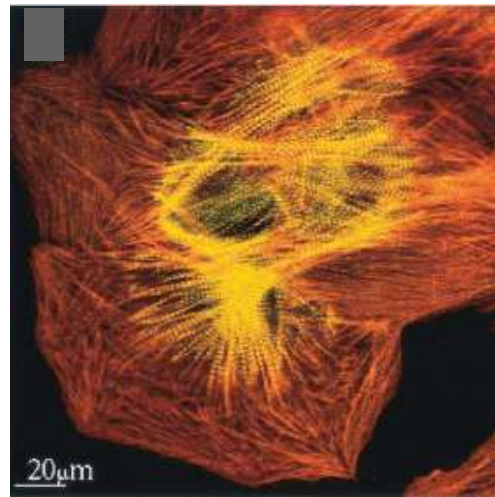
- 28% of T2DM undiagnosed heart failure
- higher incidence :
 - Increasing age
 - Females
 - Patients with BMI ≥ 30 kg/m²
 - Patients with dyspnea
 - Patients complaining of fatigue
 - Patients with hypertension

HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; T2DM, Type 2 diabetes mellitus

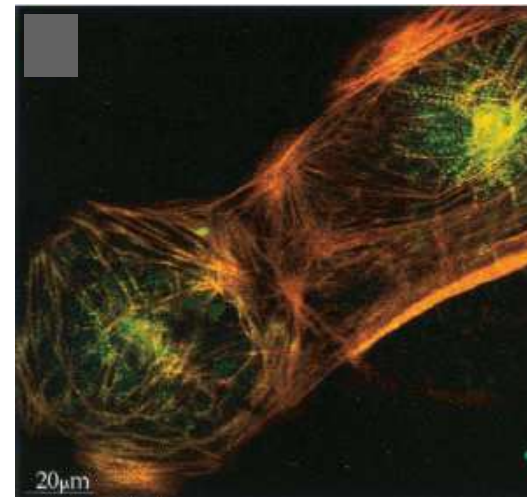
Boonman-de Winter LJ, et al High prevalence of previously unknown heart failure and left ventricular dysfunction in patients with type 2 diabetes. *Diabetologia* 2012;55:2154–2162

Cardiomyocytes

Control



Glucose



Type 2 diabetes

=

Protection against Overnutrition

Islet:

Protection

=

Insulin production ↓

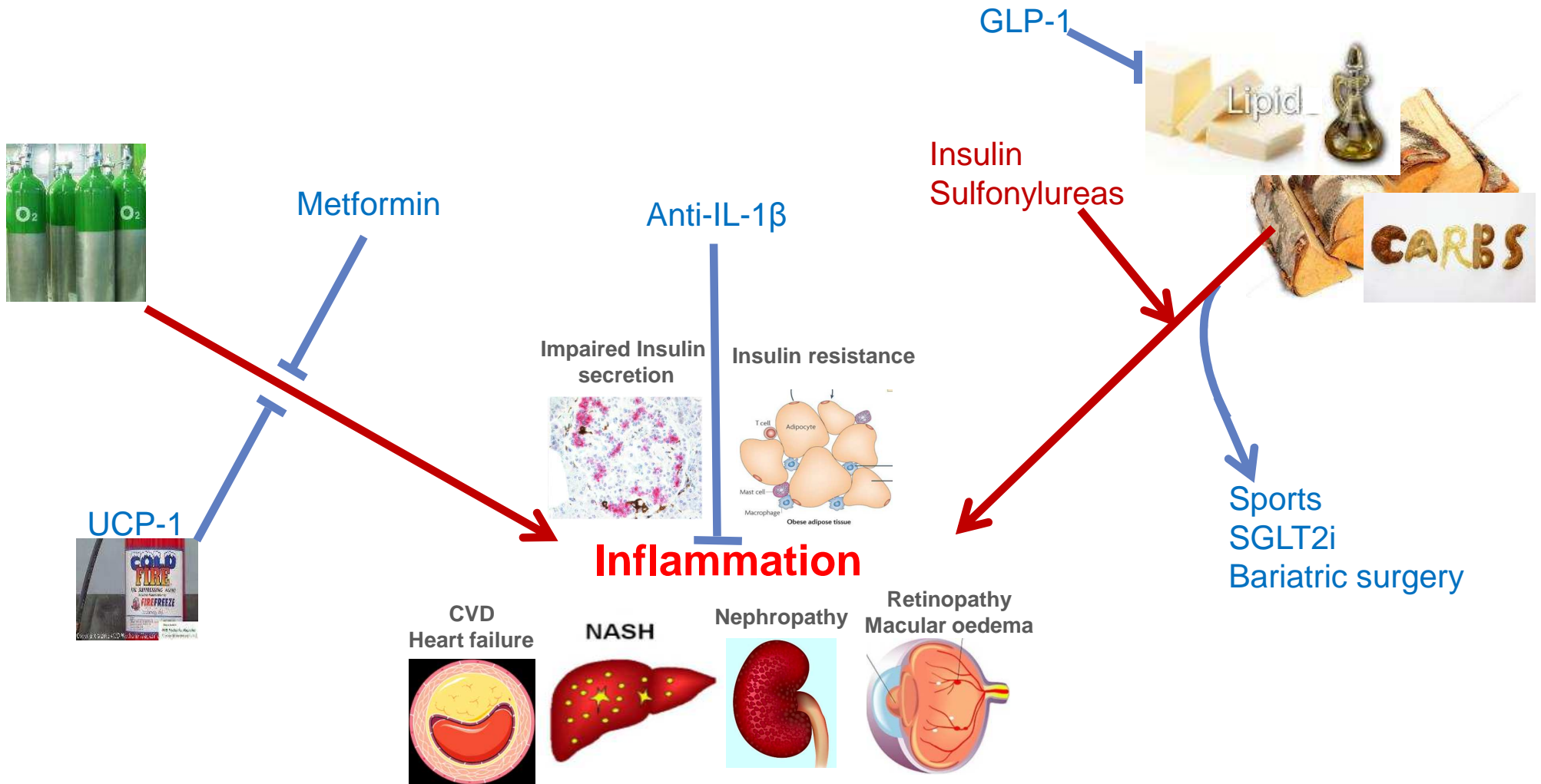
Fat, liver, muscle:

Protection

=

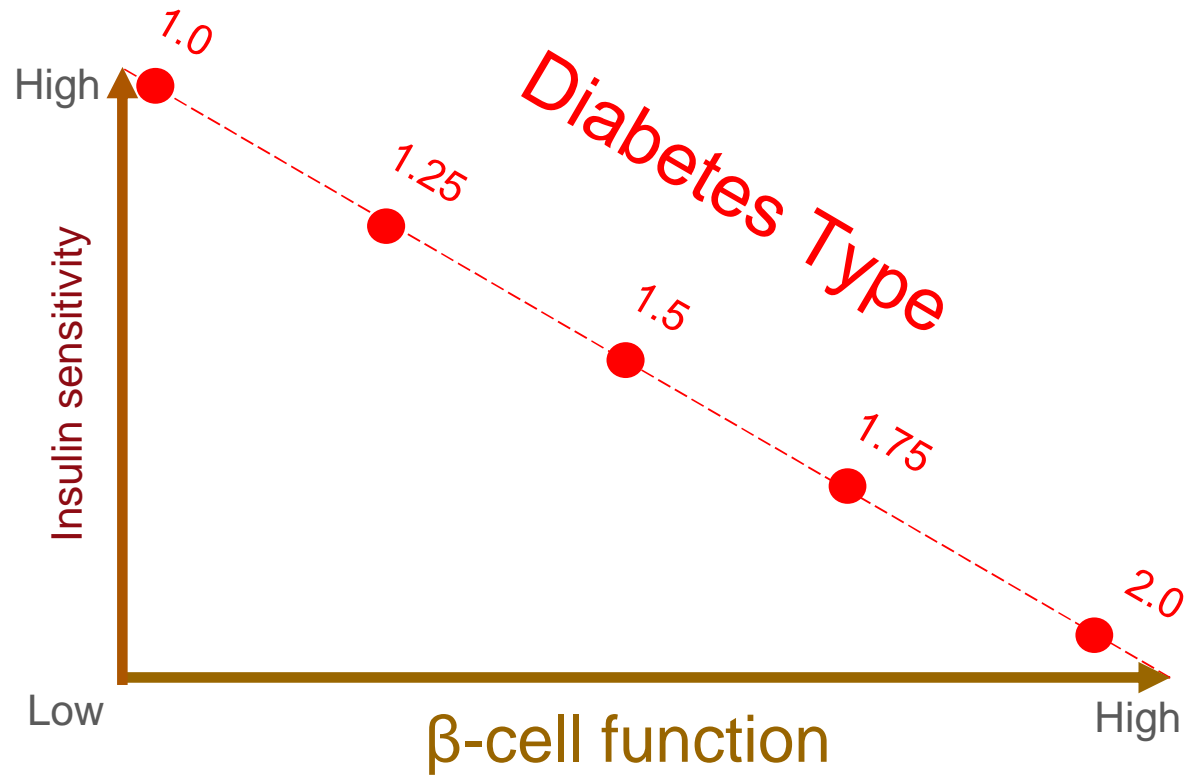
Insulin sensitivity ↓

Treatment of Typ 2 Diabetes



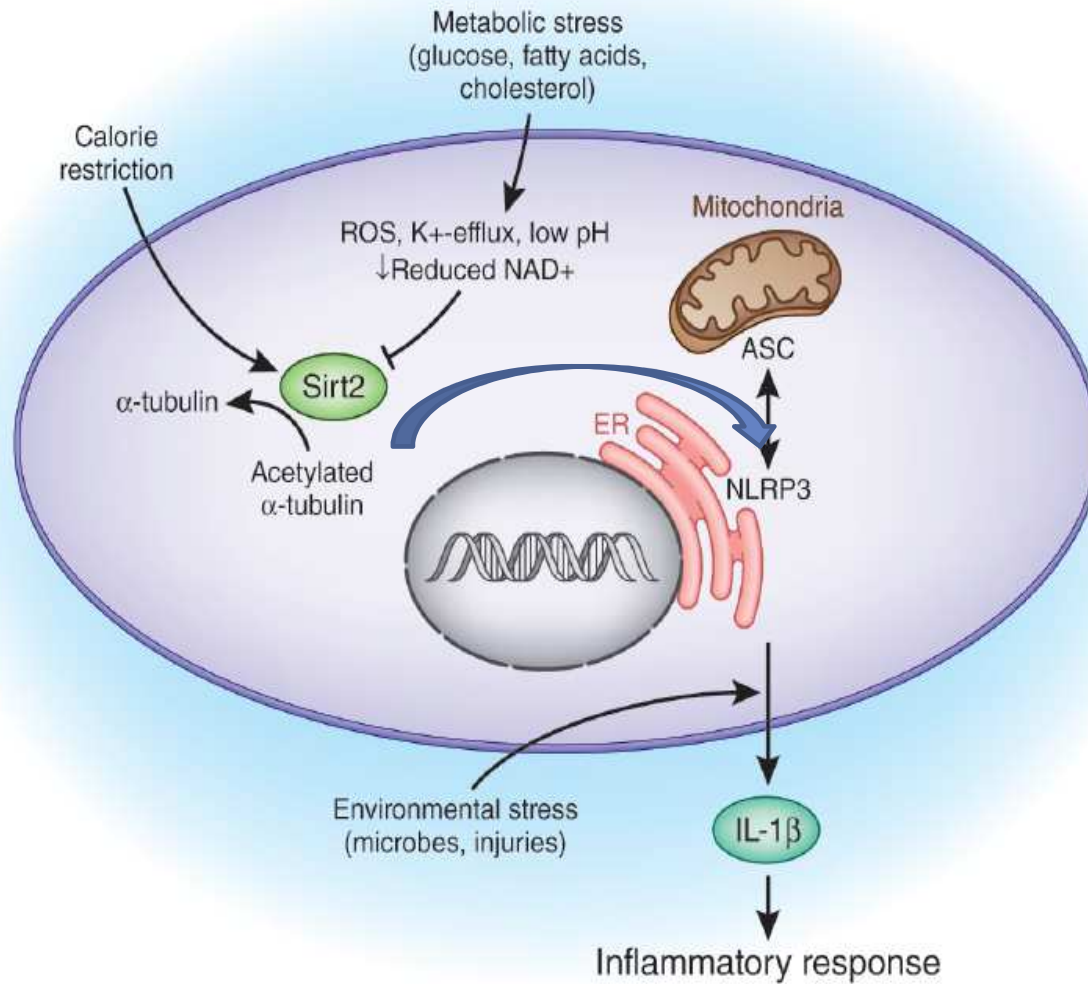
Patient, 47 year old:

- Polyuria & polydipsia for 3 weeks
- BMI 28
- HbA1c 14.8%
- Urin keton bodies +++++

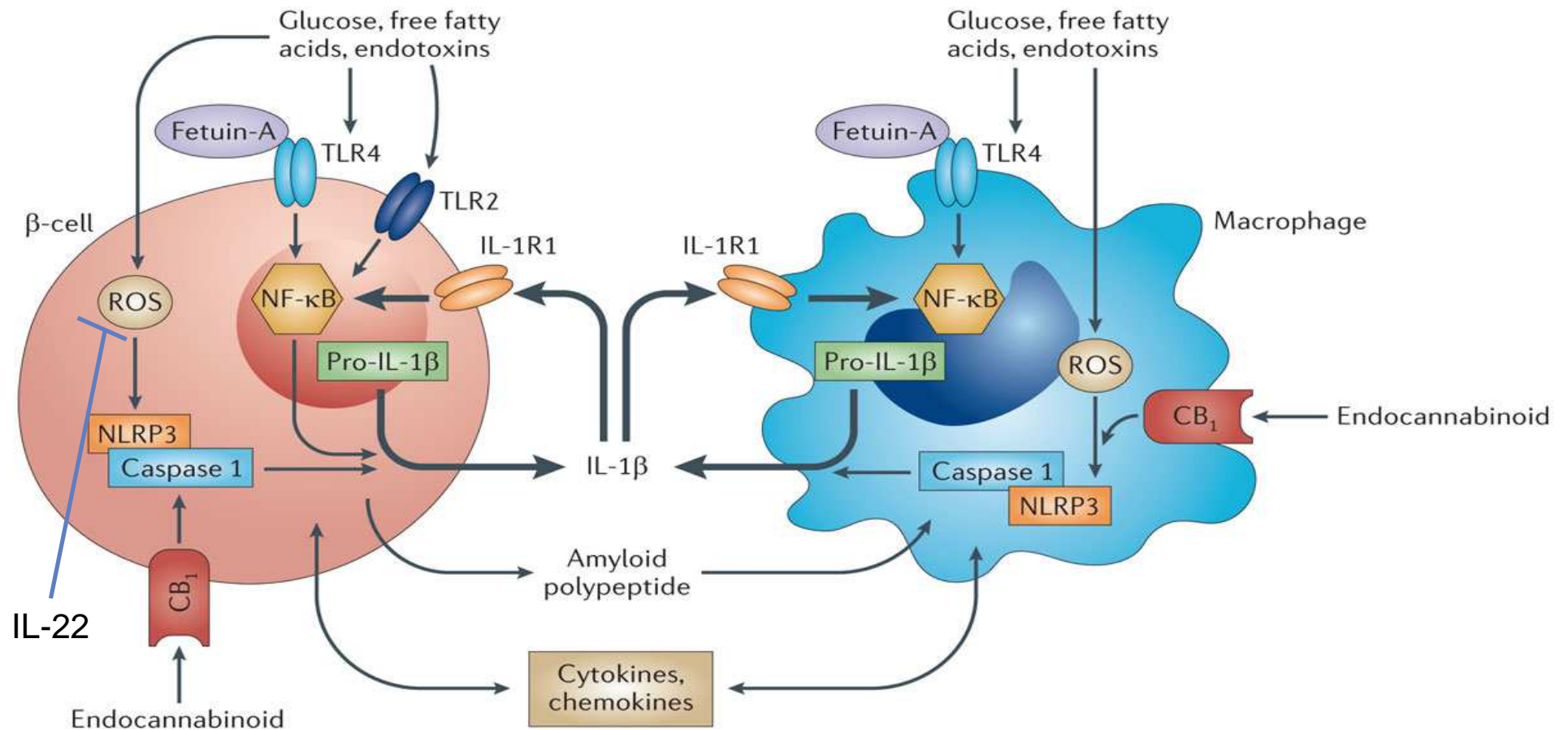


- Diabetes = hyperglycemia = lack of insulin signaling
- Further classification:
 - not based on etiology
 - clinically useless

When metabolism met immunology



Islet Inflammation in Type 2 Diabetes



Type 1, type 1.5, and type 2 diabetes: *NOD* the diabetes we thought it was

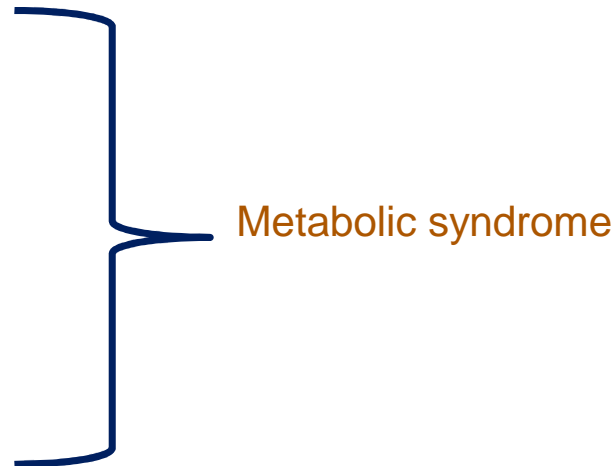
Diabetes Type	Type 1	Type 2
Age at onset		
Metabolic stress, environmental factors		
Genetic predisposition (prevalence in relatives)		
Insulin secretion failure (ranging from absolute to relative)		
β -cell death and decreased β -cell mass		
Islet inflammation (e.g. cytokines, chemokines, immune cells)		
Circulating islet auto-antibodies		
Insulin resistance		

Clinical approach to patient with diabetes (type x or y)

1. GLUCOSE

2. CLINIC

- Family history
- Ethnicity
- BMI
- Blood pressure
- Lipids



Forget: c-peptide, anti-bodies, ketone bodies & other bodies....

➤ Insulin only for normal/low BMI or poor β -cell function

Patient, 47 year old:

- Polyuria & polydipsia for 3 weeks
- BMI 28
- HbA1c 14.8%
- Urin keton bodies +++++

➤ 2 l saline & lifestyle intervention



Sent: Tuesday, July 09, 2013 7:18 AM
To: Donath, Marc
Subject: RE: Blood sugar value

Good morning Dr. Donath,

I am doing well. The weekend was nice and sunny but due to traveling (driving back from NL to CH on Sunday) I did not get too much exercise. Below my sugar values.

Friday evening	10.4
Saturday morning	13.3
Saturday evening	13.7
Sunday morning	12.5
Sunday evening	12.1
Monday morning	12.4
Monday evening	9.6
Tuesday morning	8.1

Best regards,
Marc

THE BEND-ER STUDY

Bicycle Exercise in Newly Diagnosed Diabetics in the Emergency Room

