Complications of Diabetes in the Presence of Concomitant Hypertension

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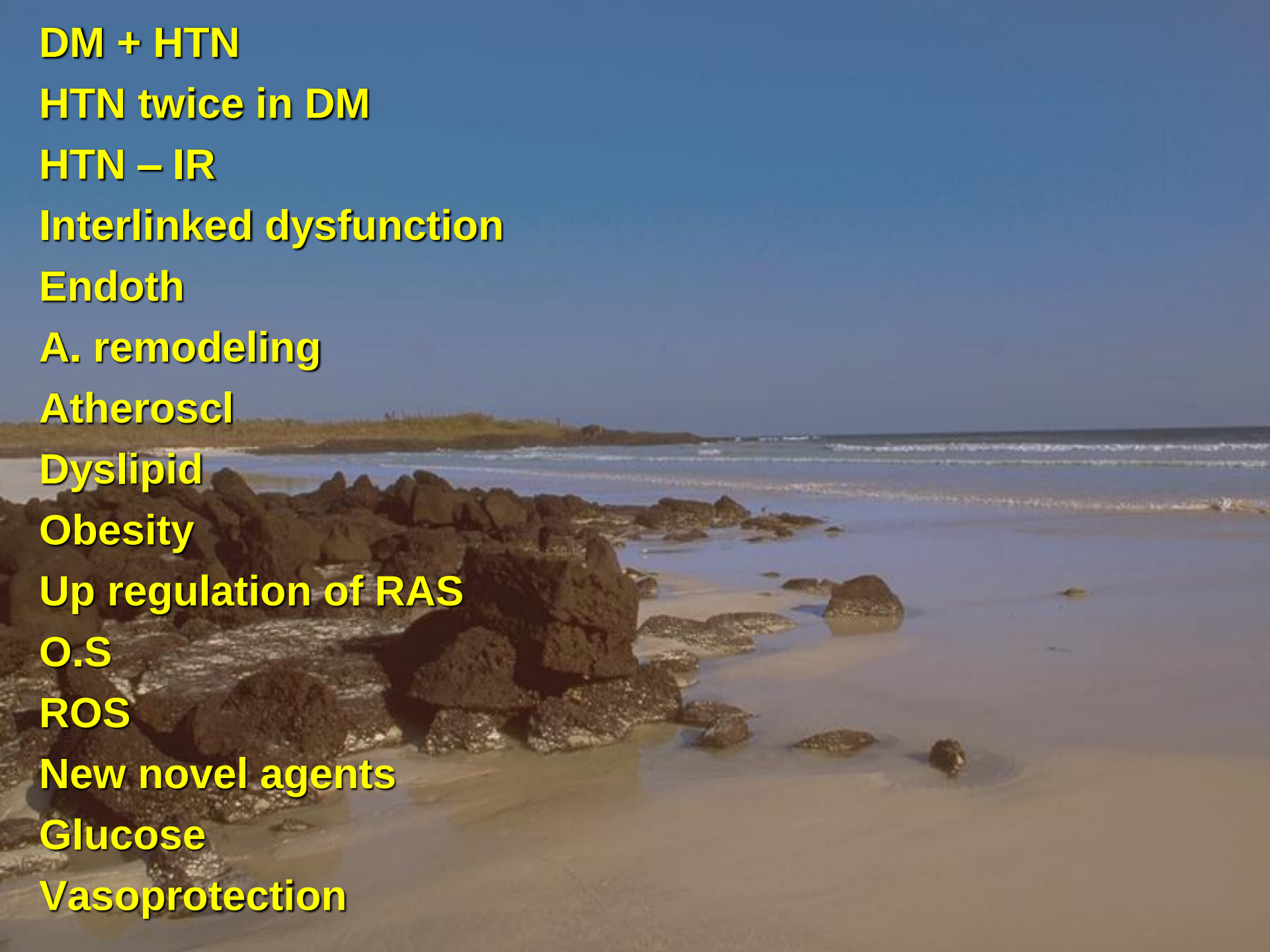

DM + HTN
HTN twice in DM
HTN – IR
Interlinked dysfunction
Endoth
A. remodeling
Atheroscl
Dyslipid
Obesity
Up regulation of RAS
O.S
ROS
New novel agents
Glucose
Vasoprotection

T2DM – 2 Fold CVD

T2DM – ACS poor

Out come – HF

DM – vosulopathy at:

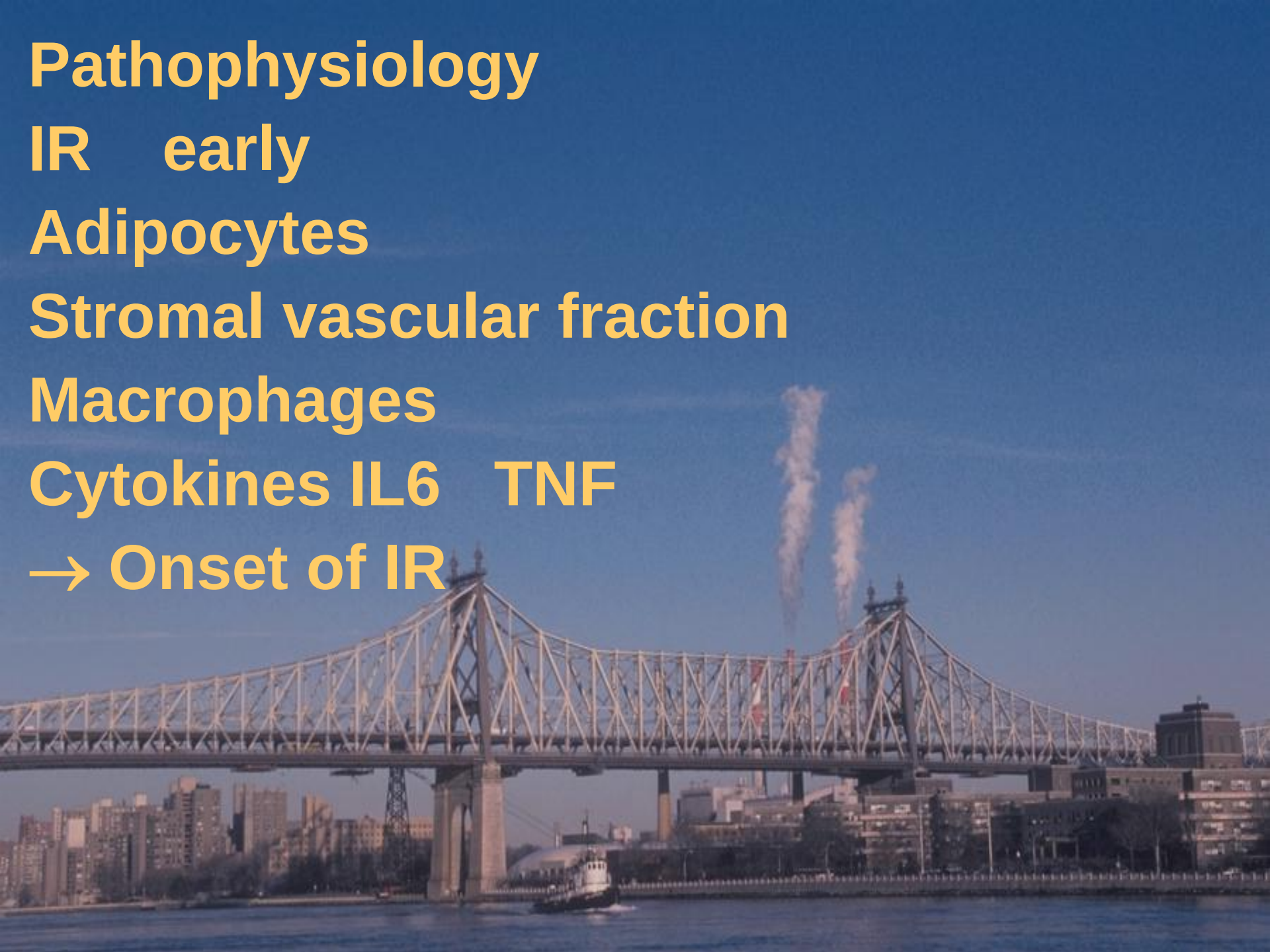
IR

Pre DM

G – Microvascular

Less modifiable on CVD

VS HTN, dyslip.



Pathophysiology

IR early

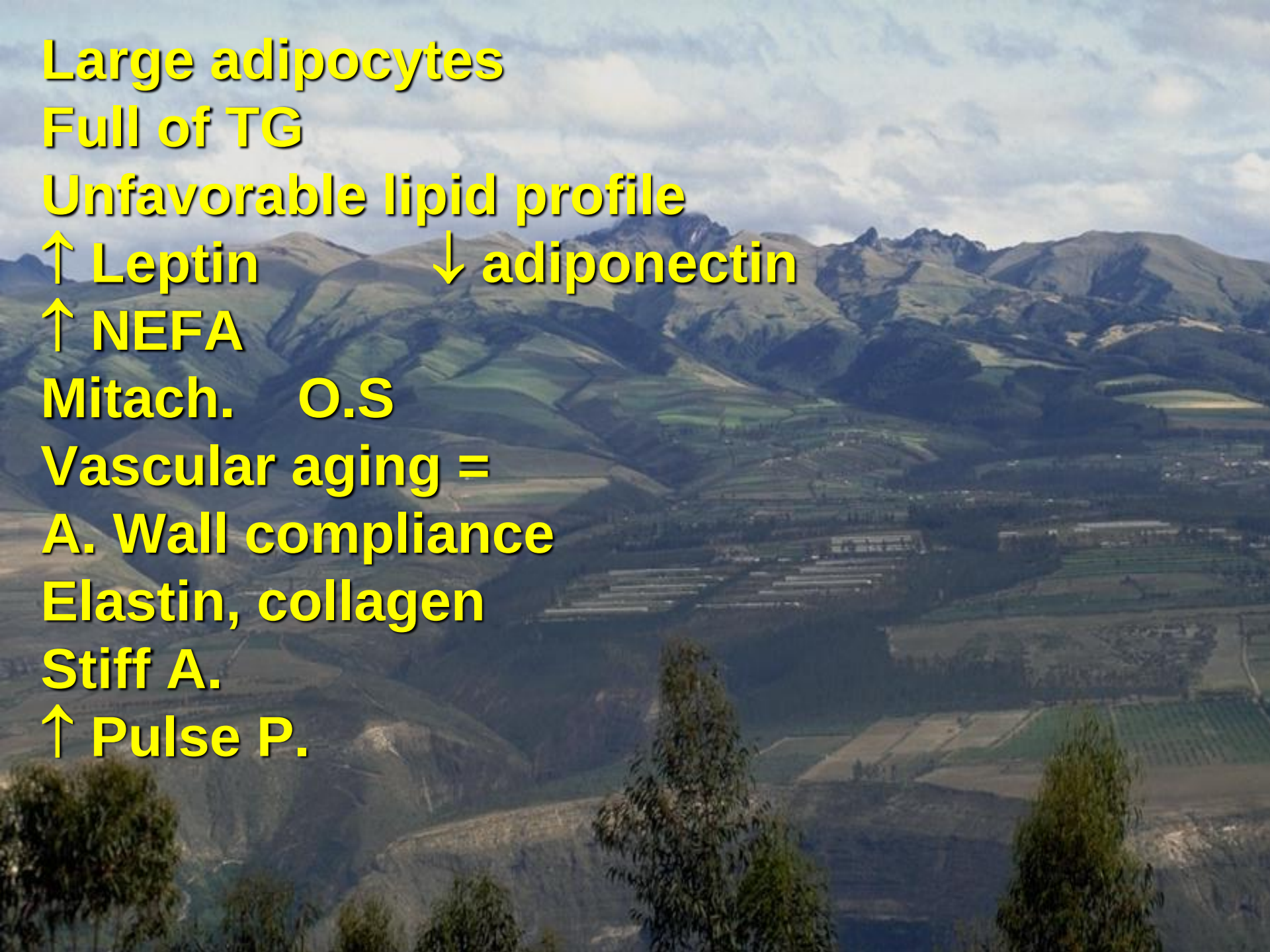
Adipocytes

Stromal vascular fraction

Macrophages

Cytokines IL6 TNF

→ Onset of IR


Large adipocytes
Full of TG
Unfavorable lipid profile
↑ Leptin ↓ adiponectin
↑ NEFA
Mitach. O.S
Vascular aging =
A. Wall compliance
Elastin, collagen
Stiff A.
↑ Pulse P.

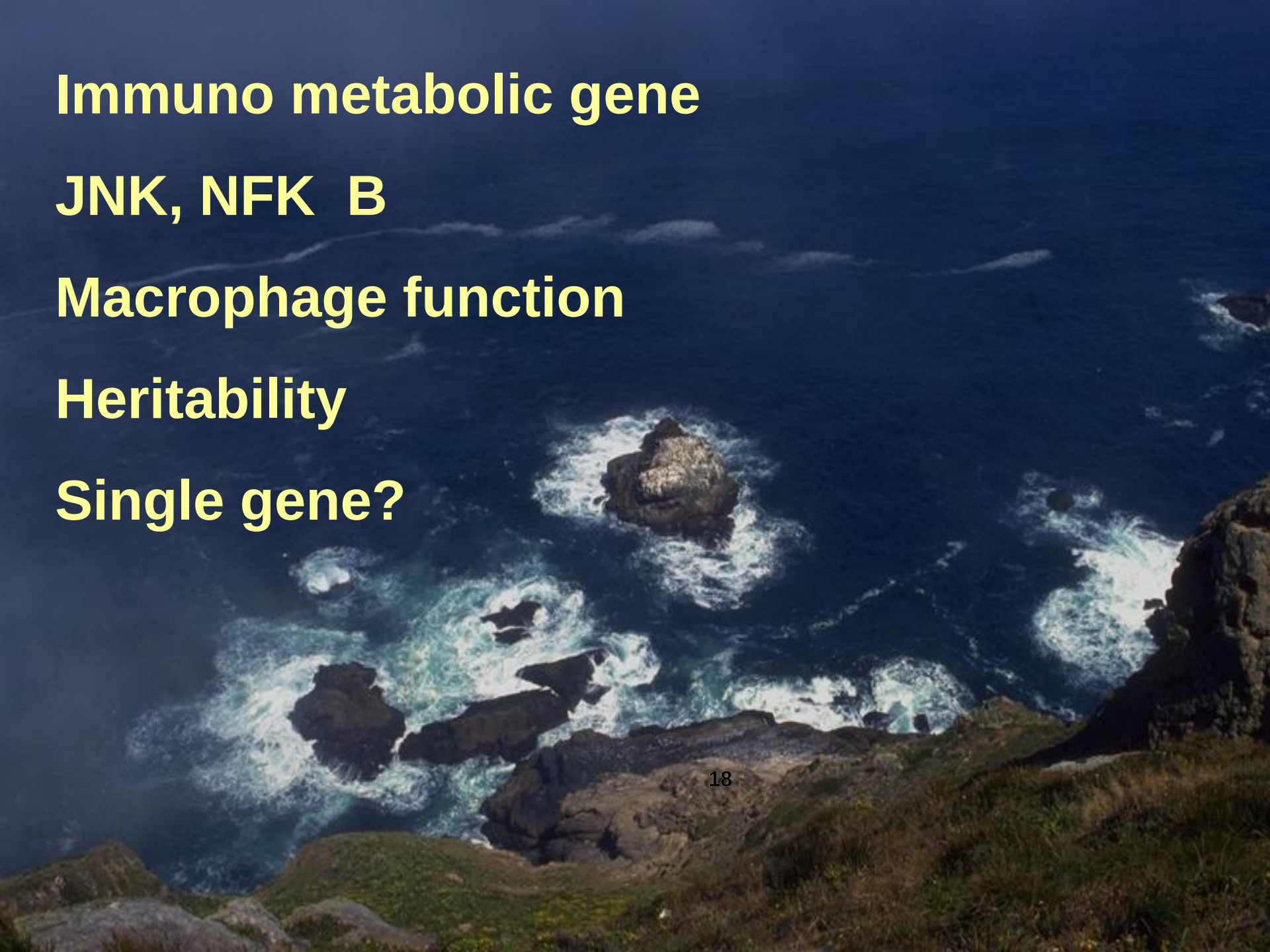
- Microvascular
- Blindness
- R.F
- P. Neuropathy
- ↑ G – duration
- Polyol pathway
- Aldose reductase
- AGE

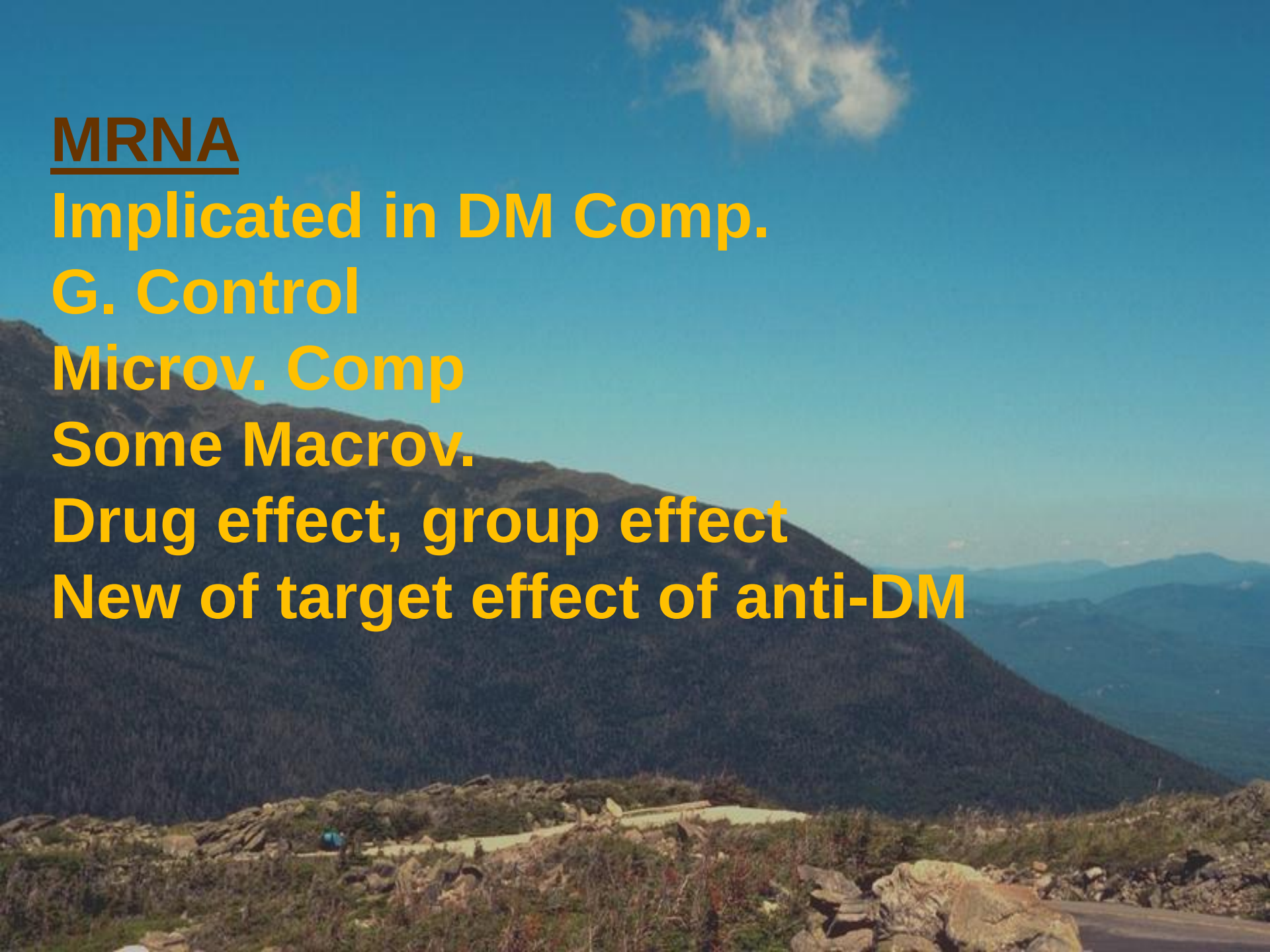
ADXANCE

Microv. ↑ CVD in DM

Ht. + retinopathy → Prog. Nephro.

ARB ↓ Prog. of Nephro. retinopathy


Immuno metabolic gene
JNK, NFK B
Macrophage function
Heritability
Single gene?



MRNA

Implicated in DM Comp.

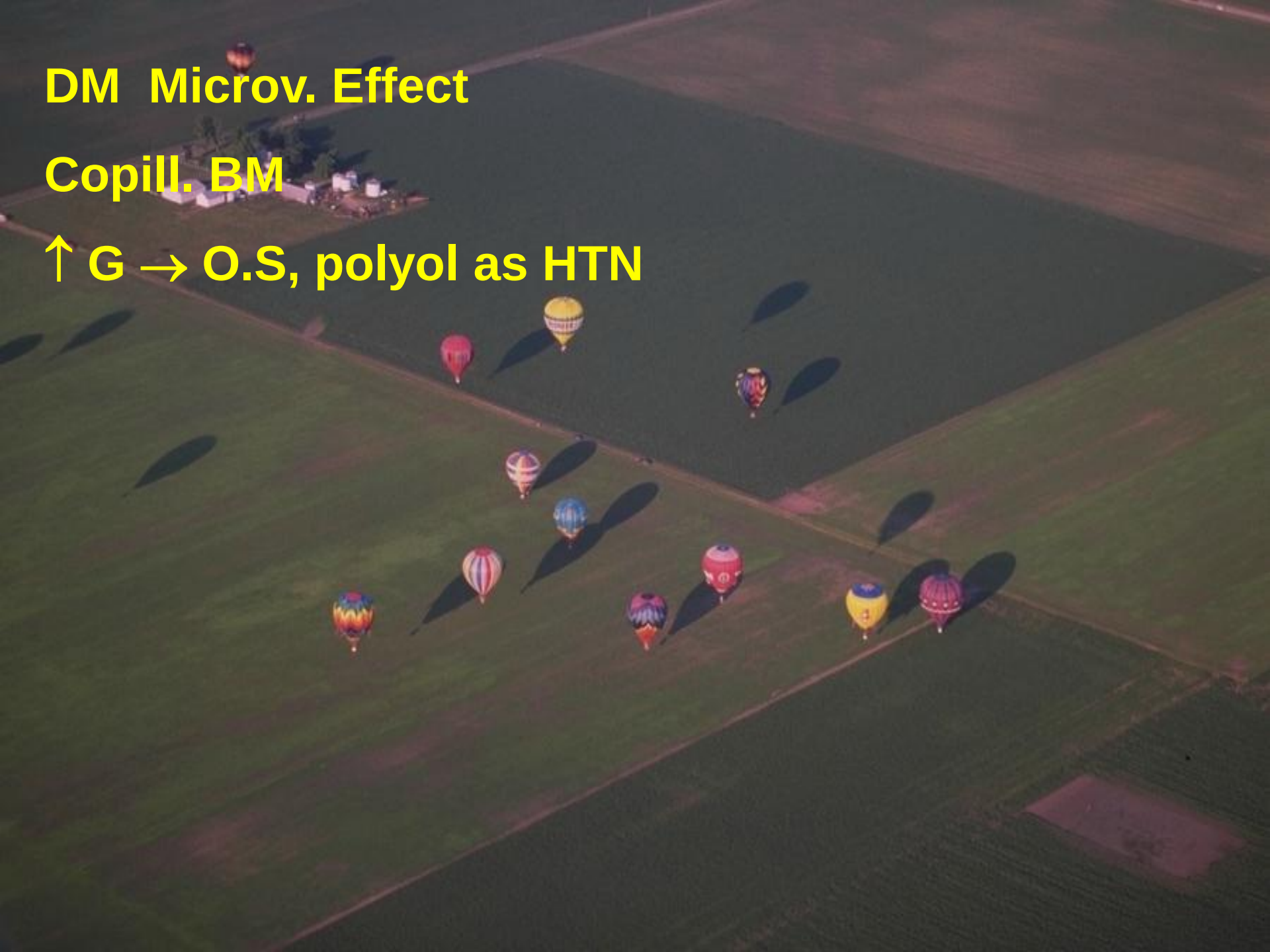
G. Control

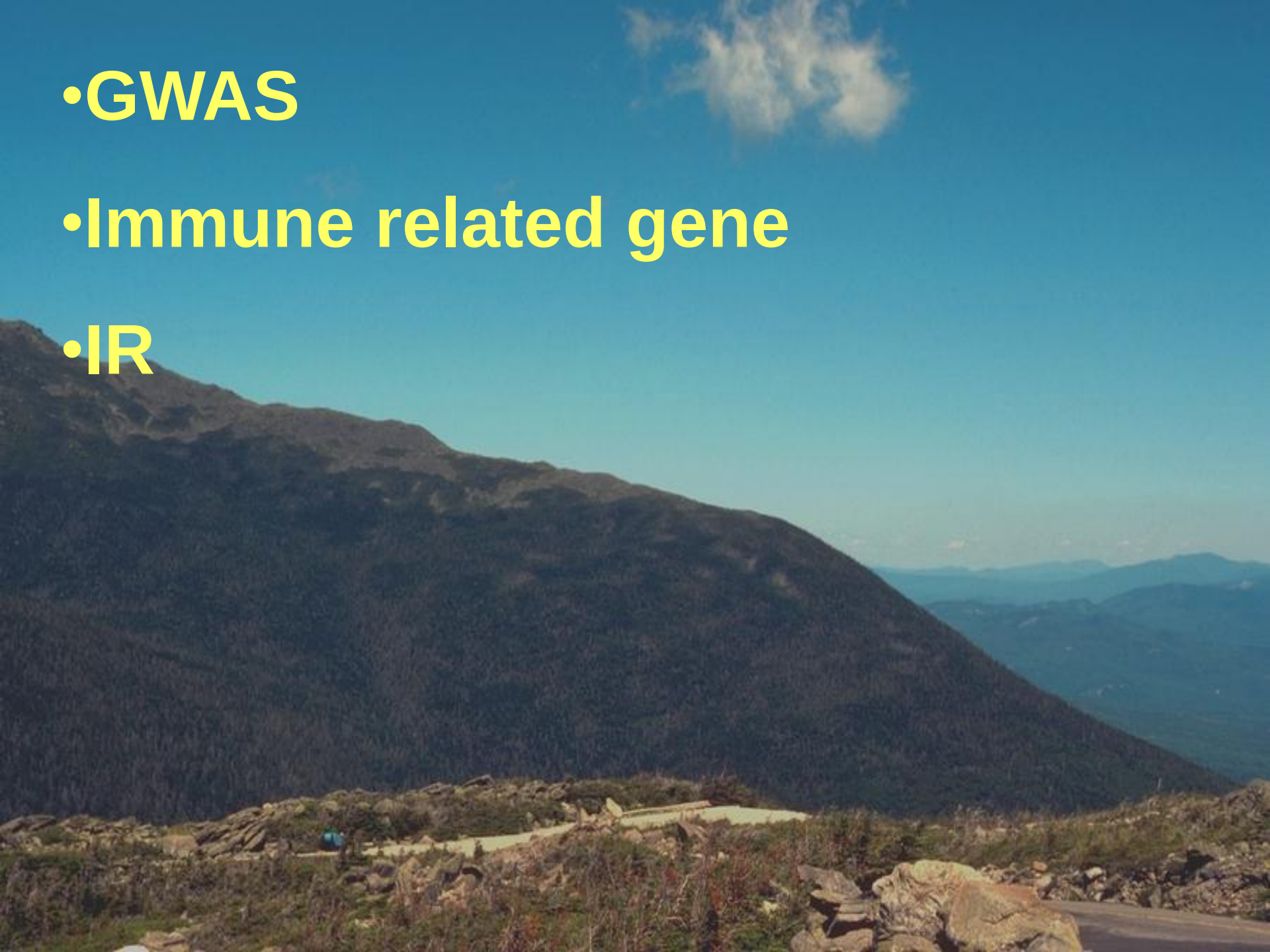
Microv. Comp

Some Macrov.

Drug effect, group effect

New of target effect of anti-DM


DM Microv. Effect
Copill. BM
↑ G → O.S, polyol as HTN


•GWAS
•Immune related gene
•IR

Target – BP, G

→ Impact on CVP

BP - ???

UKPDS, ADVANCE, ACCORD, ACE, ARB, MCB, CaCB

? Direct vasoprotective in CVD in DM

Statin, cloped

Antioxidant

New novel molecules
Bradoxolone
Vascular damage in DM
Pentoxyphyllin, barcitinib
Anti infl. + Antifibrotic

Briatic surg.
Ectopic fat on panc.

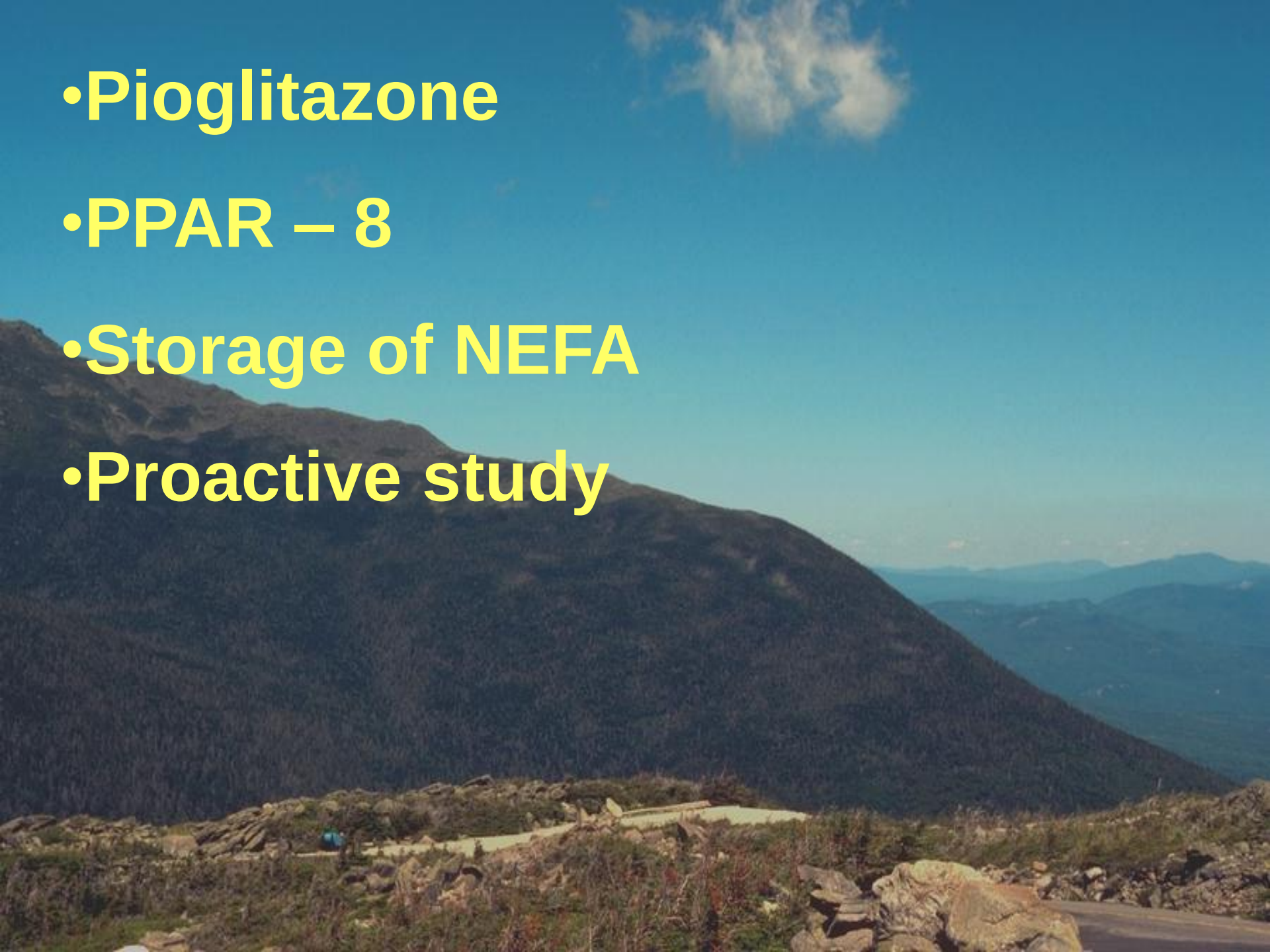
Met F

↑ AMPK

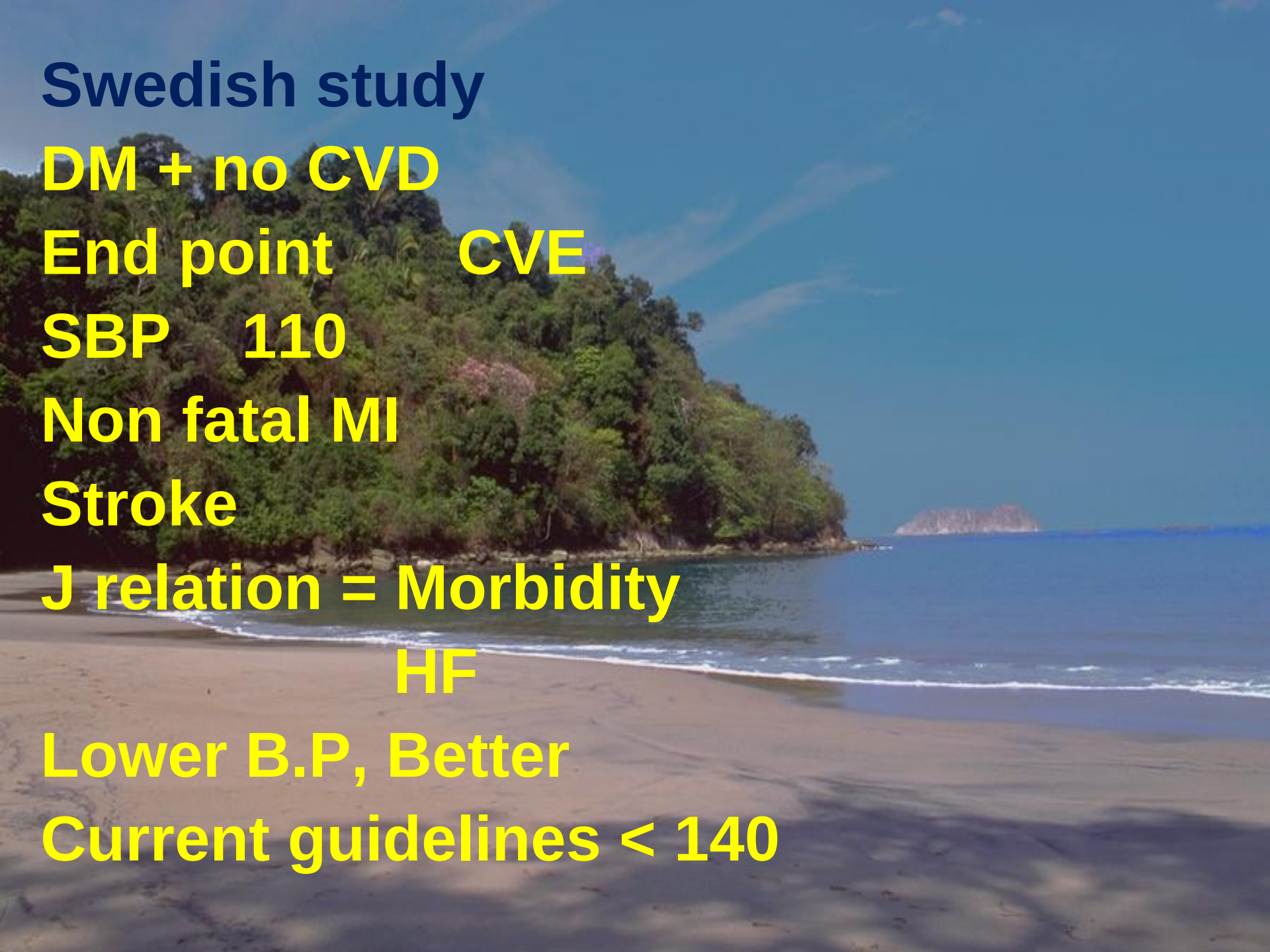
→ Inhibit mitoch. Resp.

→ Improve endoth. biomarkers

Landmark of UKPDS


•Pioglitazone
•PPAR – 8
•Storage of NEFA
•Proactive study

GLPI
LEADER
Lirag, dulag, semag
SGLT2
↑ Ketones
Plasma volum
BP
CV benefit
EmpaReg
EmpaRise



Swedish study

DM + no CVD

End point CVE

SBP 110

Non fatal MI

Stroke

J relation = Morbidity

HF

Lower B.P, Better

Current guidelines < 140

Observational studies

J Relation (+)

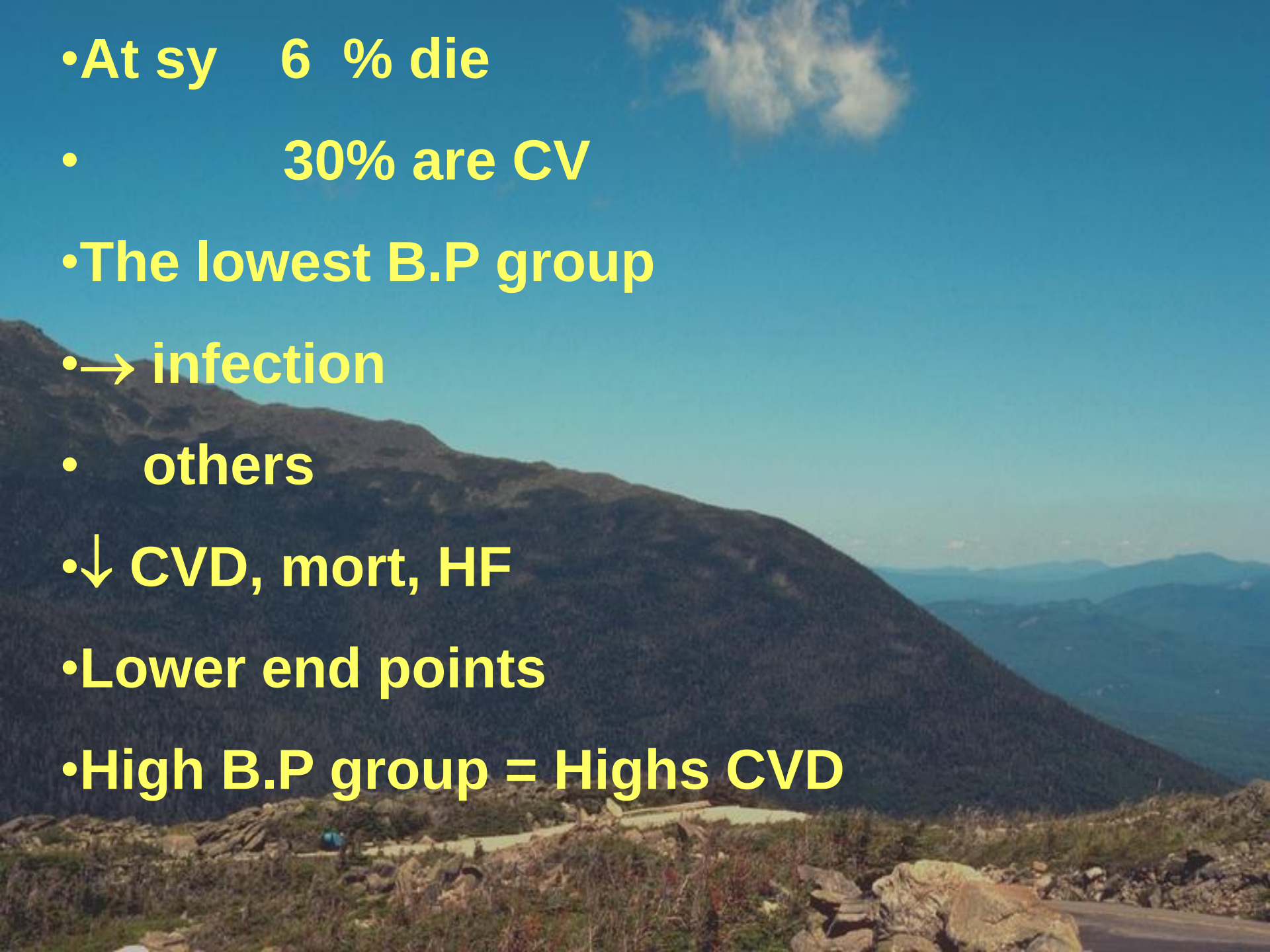
Confounding factors

Swedish study

B.P groups

End points

Kaplan Meyer



- At sy 6 % die
- 30% are CV
- The lowest B.P group
- → infection
- others
- ↓ CVD, mort, HF
- Lower end points
- High B.P group = Highs CVD

ACCORD

- Benefit of SBP < 120
- VS > 130
- Benefit only stroke reduction by 40%

SPRINT

- SBP < 120
- Reduce all CV end points

Thank You