



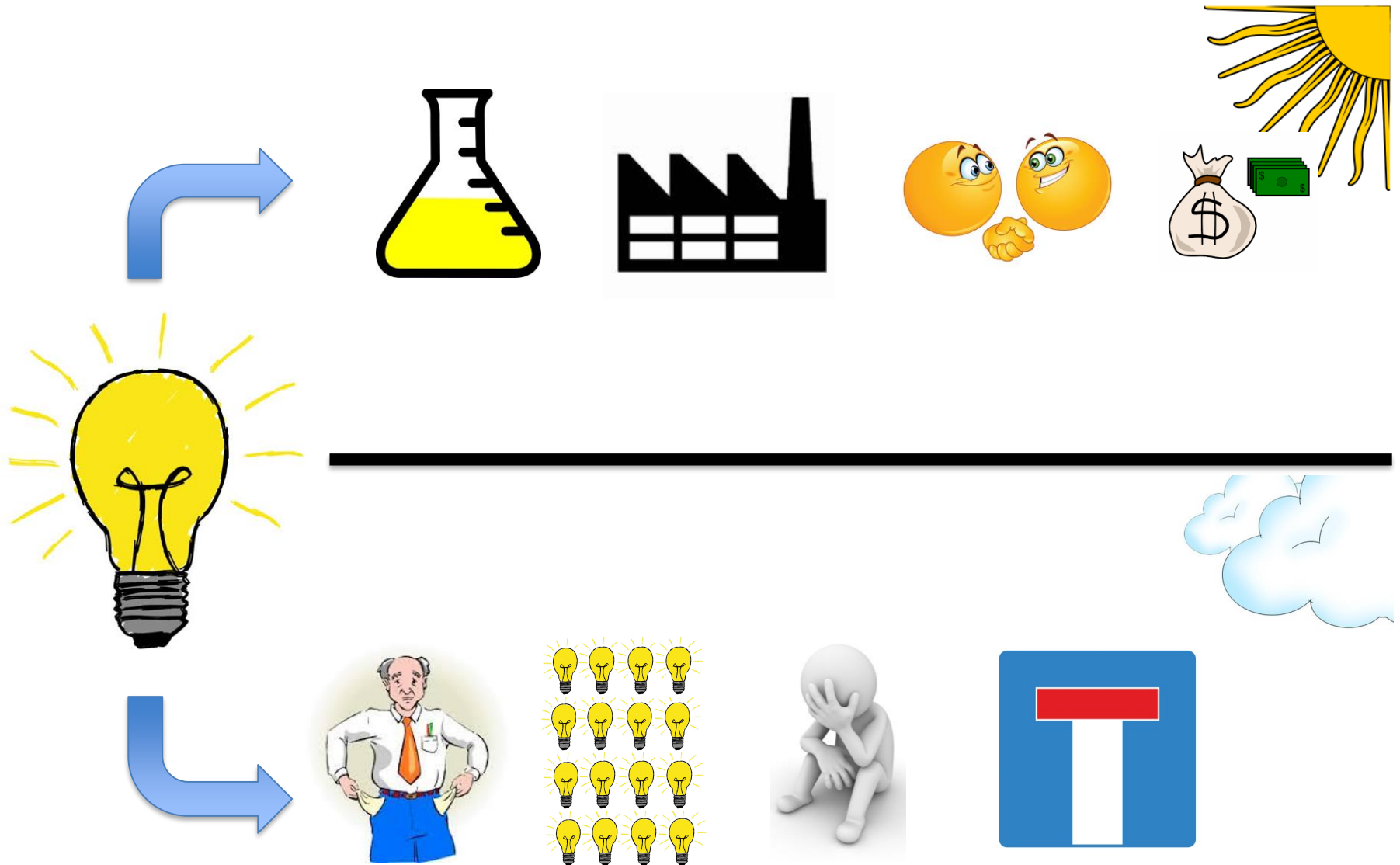
10 years of developing new ideas in microbial biotechnology

dr. Gregor Kosec

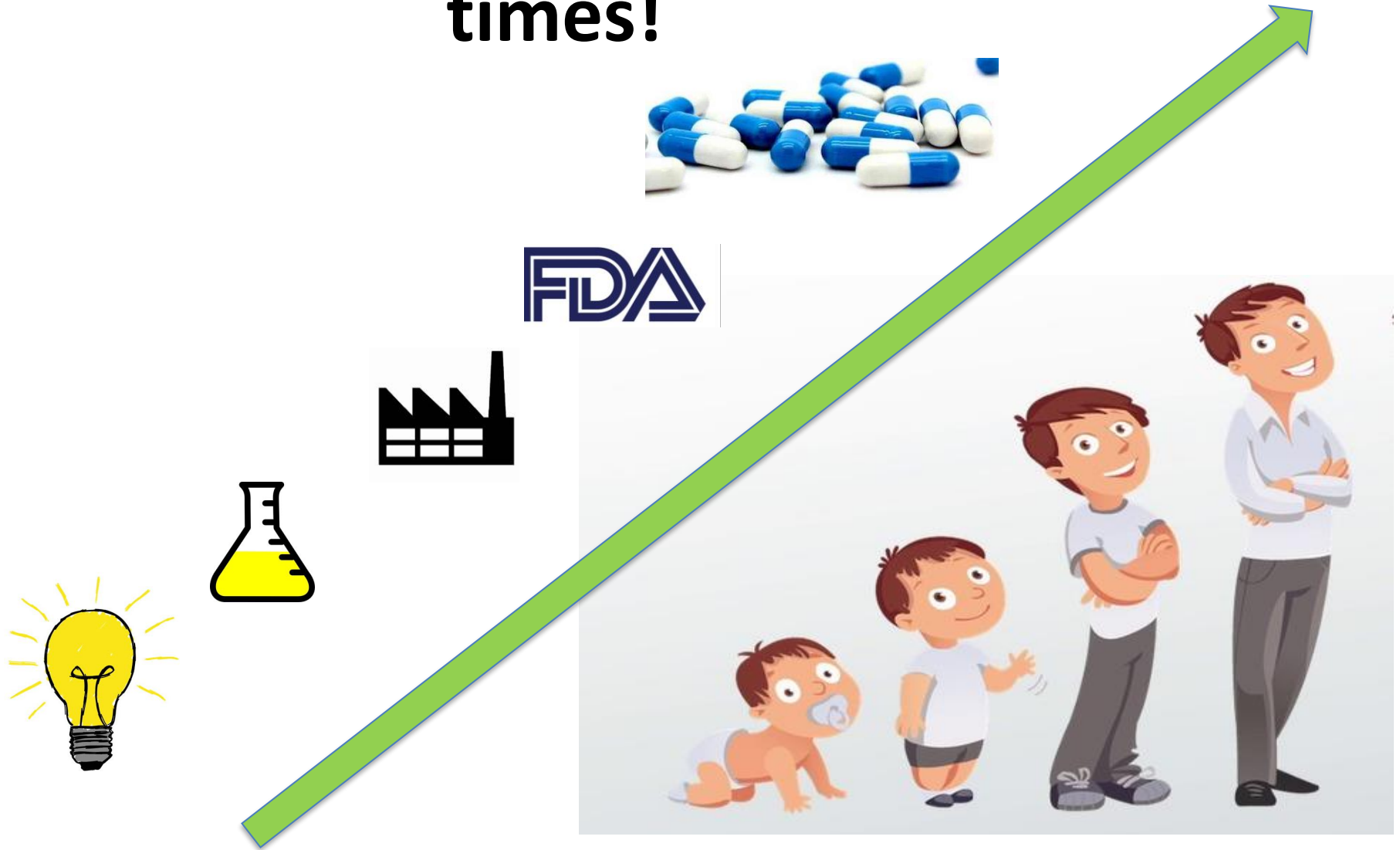
ACIES BIO d.o.o.

Ljubljana, 08.11.2017

Where can good ideas go?



In life sciences, ideas require particularly long development times!



Acies Bio is founded with a vision to combine revenue-generating contract research with proprietary R&D



LAUNCH

2006

Start-up company established by a group of senior scientists from biotech and pharma industry.



NEW FACILITIES

2008

R&D centre established within Technology Park Ljubljana.



EXPANSION

2011

Expansion of laboratories to enhance capabilities in synthetic chemistry.



NOW

2016

New 10m³ pilot-scale facility constructed for technology scaling-up

Acies Bio: people and facilities



700 m²
facilities

50 scientists
17 with PhD

Molecular biology

Fully equipped molecular biology lab
Expertise in transformation of difficult strains



Microbiology

HTP screening
17 multitrion shakers
Cultivation in microtiter plates, flasks and Falcon tubes



Chemistry/DSP

Up to 20 L reactor volume
Preparative HPLCs,
Biotage Flash chromatography

Pilot facility

From 5L to 10.000 L
bioreactor vessels



Analytics

HPLC, UPLC, LC-MS,
spectrophotometers,
Collaboration with national NMR facility

Main market activities

STRAIN DEVELOPMENT



achieving higher yields and better impurity profile through directed evolution/classical strain selection and/or synthetic biology

DSP DEVELOPMENT



from laboratory to factory, offering support in tech-transfer and expertise in scaling-up

BIOPROCESS DEVELOPMENT



fast screening through in-house bank of growth media; scale-up from 5 to 150 L and 10 m³

CHEMICAL SYNTHESIS



development of process chemistry, green chemistry compliant processes, biotransformations

ACTIVE PHARMACEUTICAL INGREDIENTS (APIs)

AGRO AND FINE CHEMICALS

NUTRACEUTICALS

PROBIOTICS / STARTER CULTURES

Examples of proprietary technologies



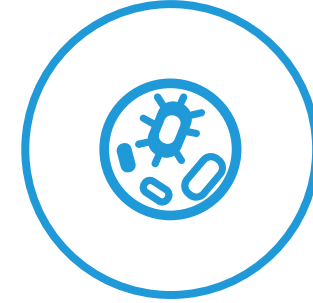
Whey2Value
conversion of whey
from a variety of
cheeses
end product with high
content of vitamin
B12

Recent JV



**Development of
CAB1803**
treatment of rare
neurodegenerative
disease - PKAN
orphan drug
designation granted
by EMA

Recent spin off

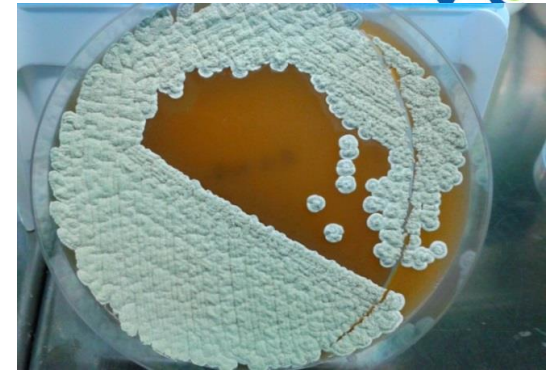


**Unusual tetracycline
antibiotic CAB1601**
resistance/breaking
properties
Active against
ESKAPE
potential for
treatment of urinary
infections

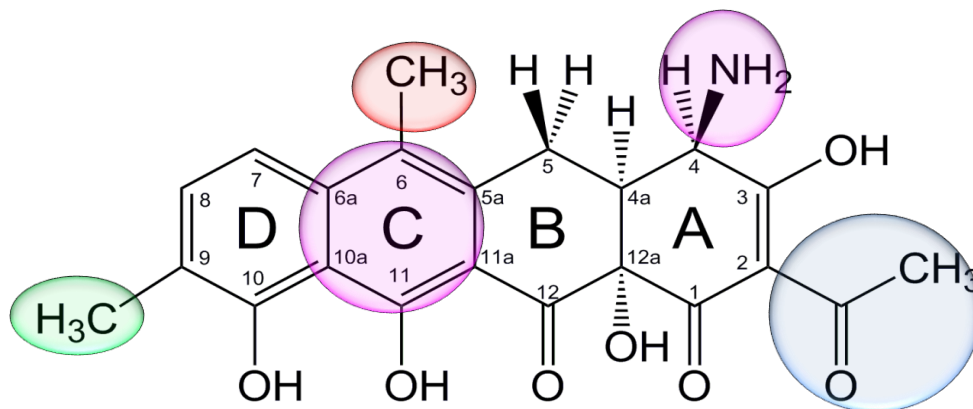
Partnered with the
Helmholtz Institute

Antibiotic chelocardin

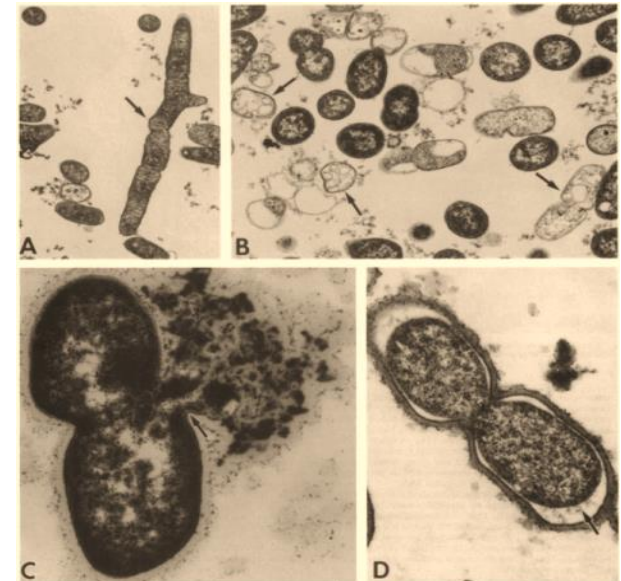
- Chelocardin - atypical tetracycline
- Produced by a soil bacterium *Amycolatopsis sulphurea*
- Antibiotic - extremely potent in killing infection-causing bacteria
- Reached clinical trials in 1970s
- Never registered for clinical use



Amycolatopsis sulphurea



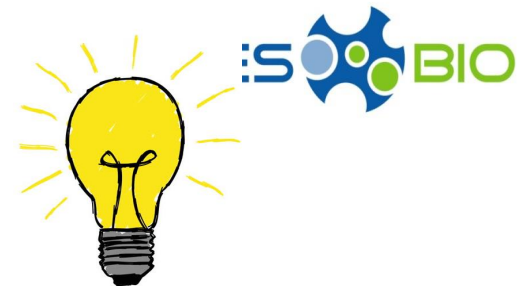
chelocardin - CHD



Bactericidal effect of CHD

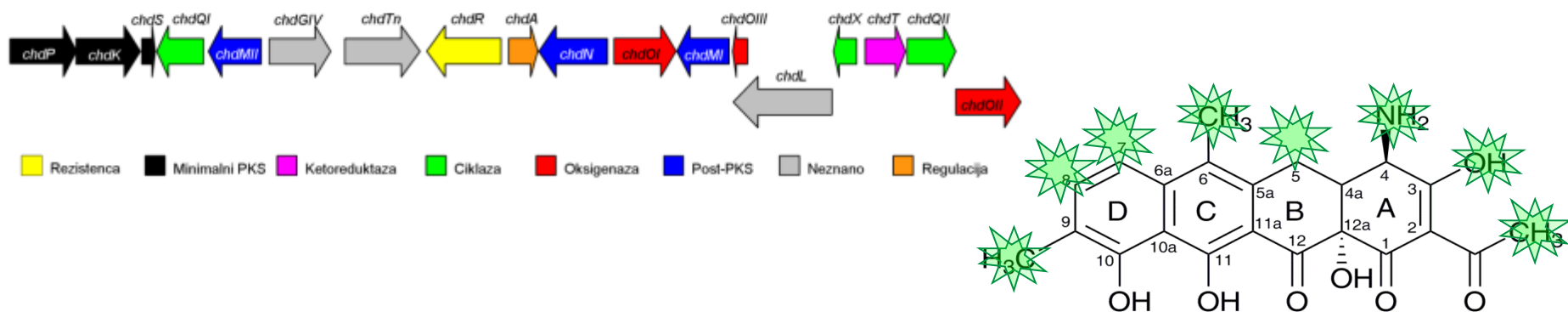
Antimicrob Agents Chemother. 1992;36(5):913-9

Univerza v Ljubljani



New chelocardin analogues

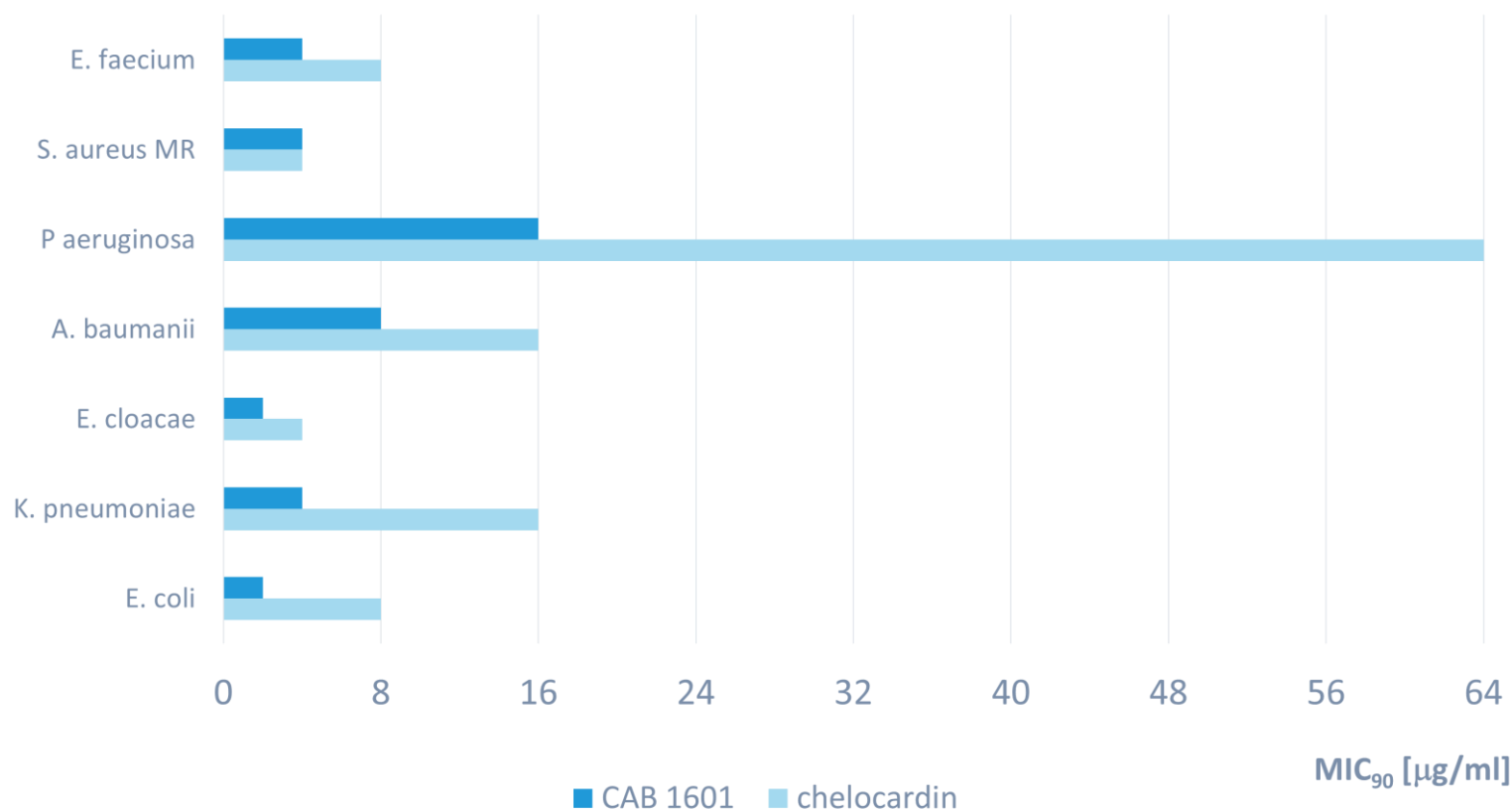
- Identification of the genes responsible for chelocardin production by University of Ljubljana (group of prof. H: Petković)



- opened possibilities for new IP protection – patent application filed
- Acies Bio licensed the invention and generated several new chelocardin analogs



New chelocardin analogue – CAB1601



Hitting 2 targets simultaneously

Extremely difficult for bacteria to develop resistance



International Consortium



Biotechnical faculty, University of Ljubljana



Acies Bio d.o.o., Ljubljana



Helmholtz-Institute for Pharmaceutical Research Saarland,
Saarbrücken, Germany

Helmholtz-Institut für Pharmazeutische Forschung Saarland



Hospital Universitario Marques de Valdecilla,
Santander, Spain



National institute of chemistry, Ljubljana



Kemijski inštitut
Ljubljana
Slovenija

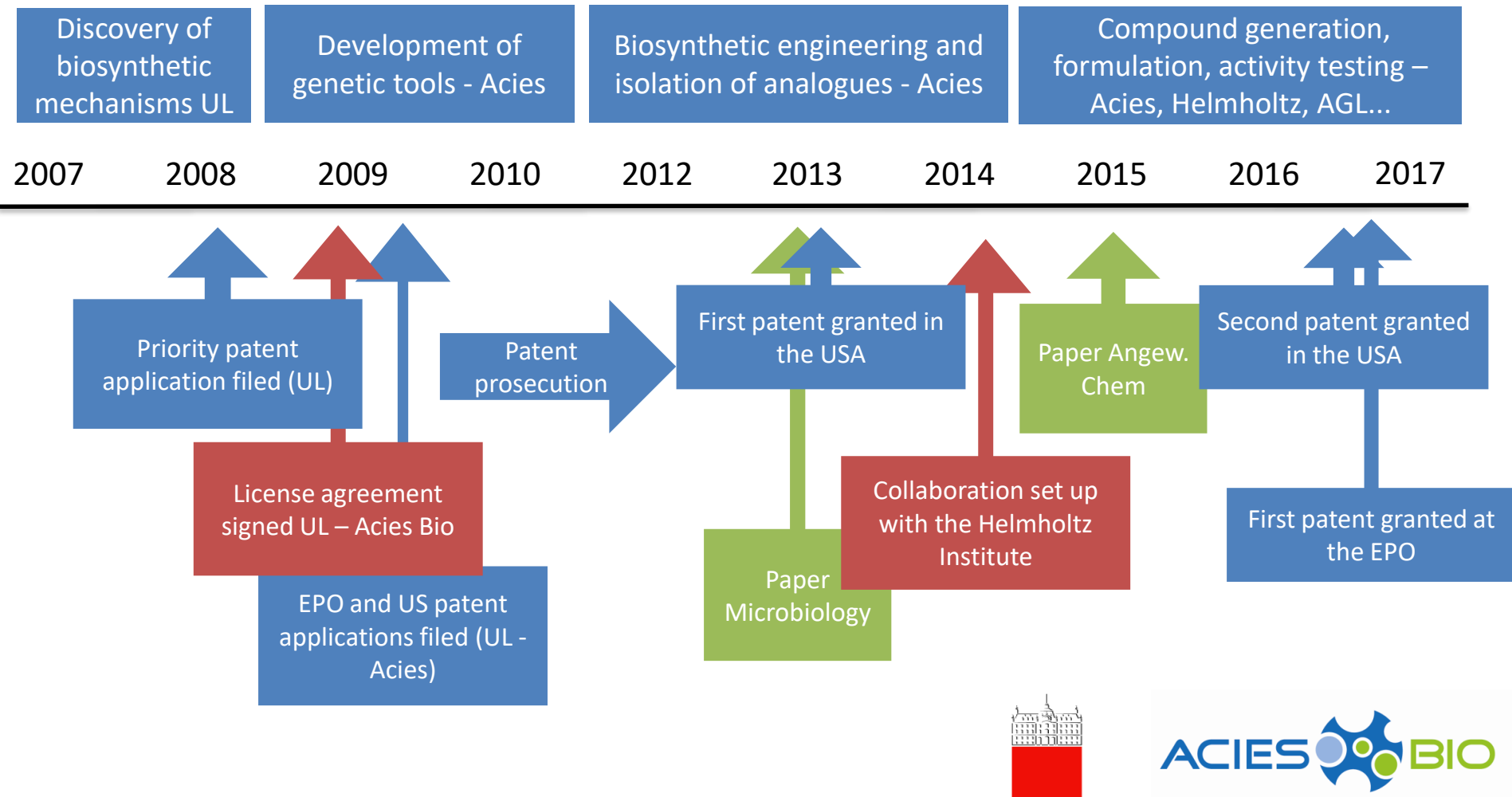
National
Institute of Chemistry
Slovenia



University of Strathclyde, Glasgow, UK



Key milestones in development of chelocardin analogues



Conclusion

- A research-focused SME, like Acies Bio, can be a an optimal environment for developing early stage ideas



Commercial and scientific
aspects



Dedication - enthusiasm



Constancy in development



Flexibility and partnering



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