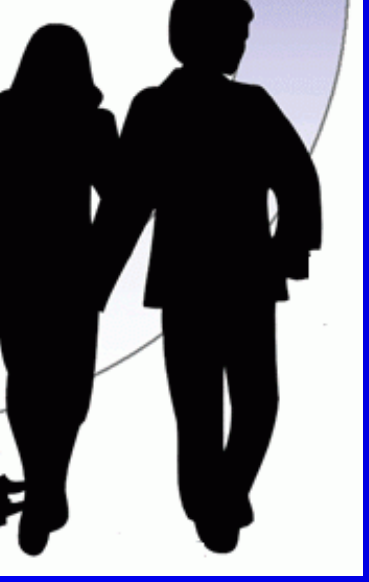


ome-induced proteome d in autoimmune disease

we have heard a lot about
alized' Medicine resulting
ation of the disease proce

ocus on 'Predictive' and
ntative' Medicine – which
sult from an *understandi*

000 Genomes Proje

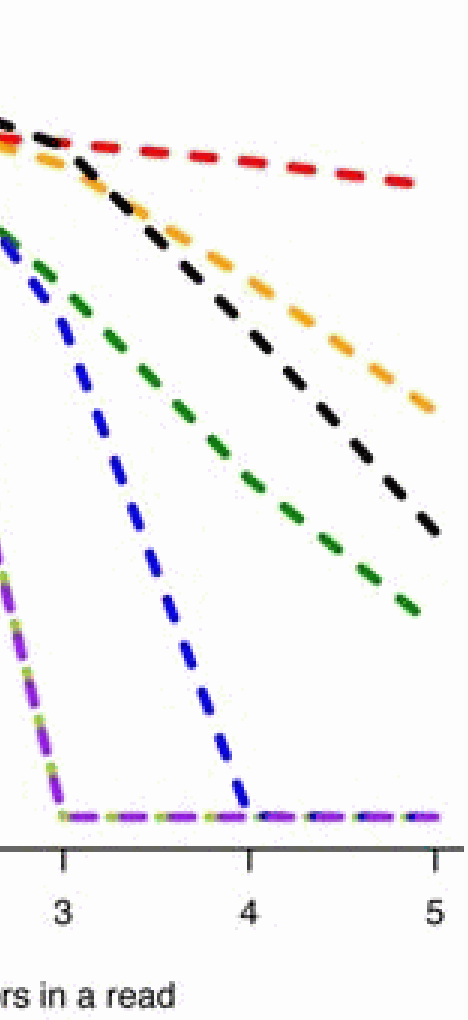
0 Genomes Project is an interna
tion which has mapped .. the g
then 2500 individuals and publi
f SNPs and other human genet
s ..

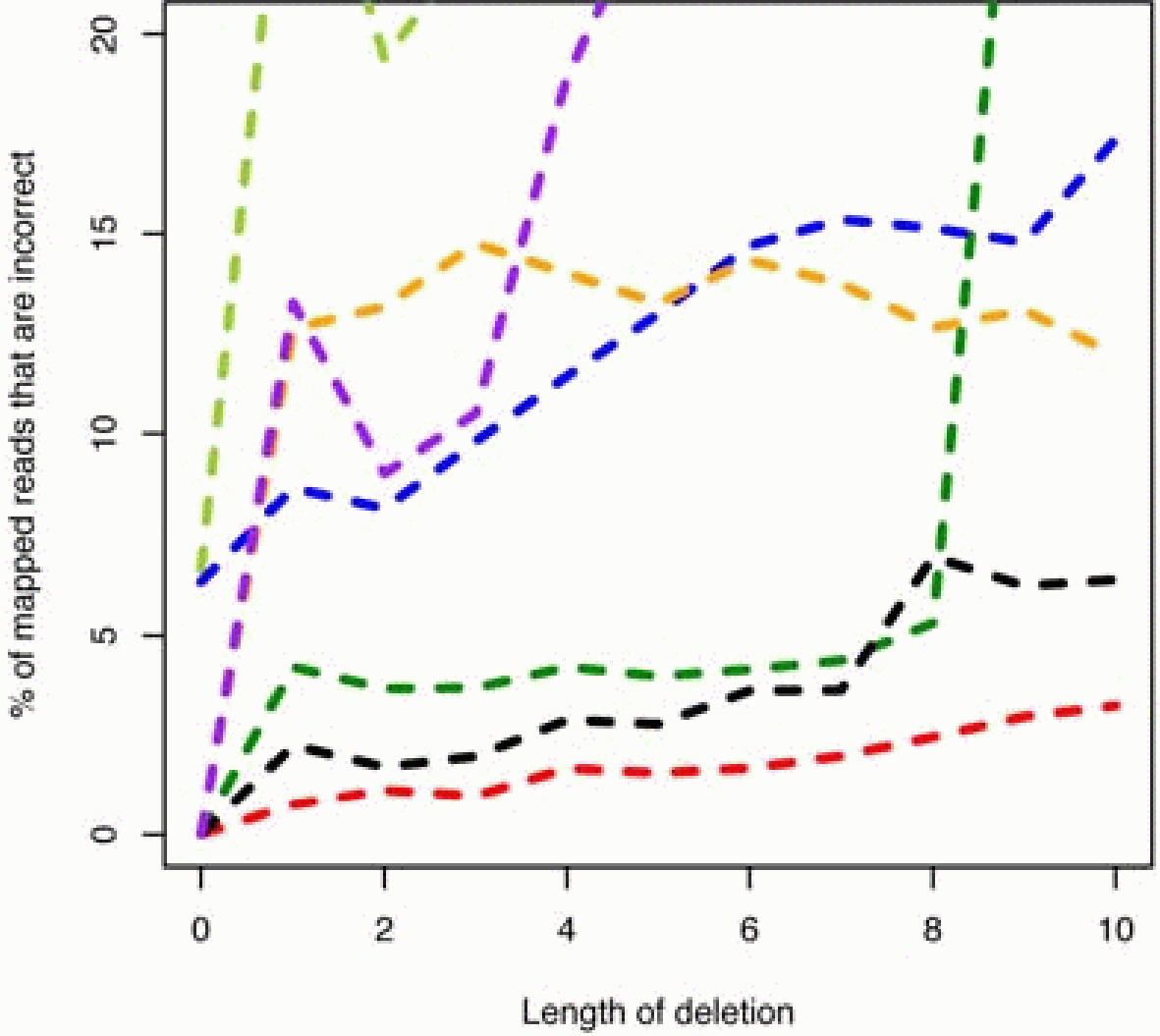
ma contamination in the 10
Project

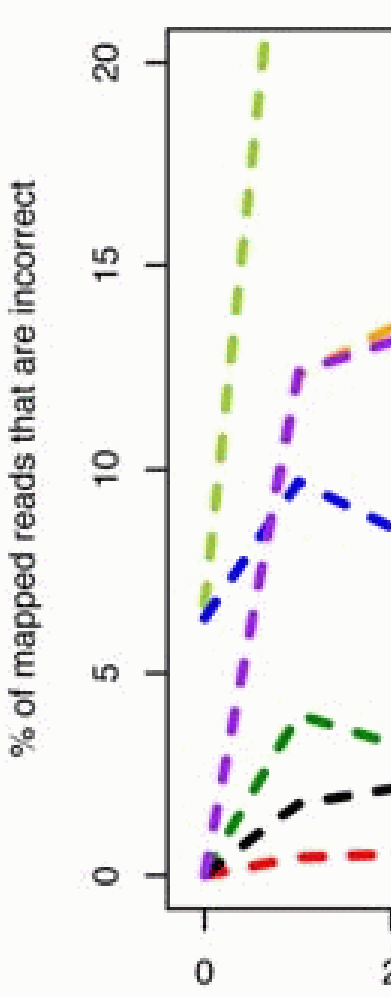
Abstract

Background: *In silco* Biology is increasingly important and is c
data. While the problem of contamination is well recognised in
corresponding problem of database corruption has received le

Results: Mapping 50 billion next generation DNA sequences f
Genome Project against published genomes reveals many that
Mycoplasma but are not included in the reference human gen





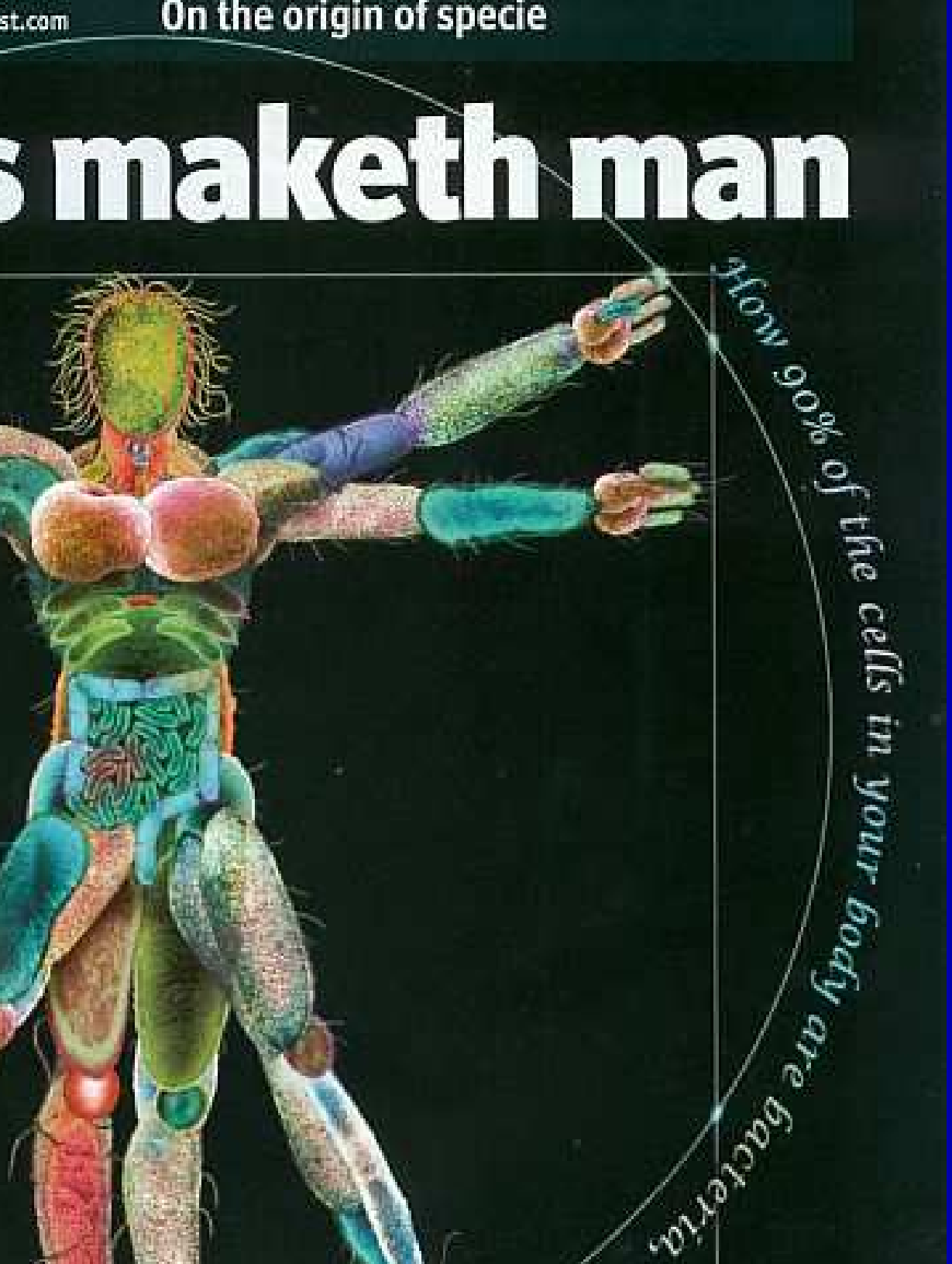


rds Lab Blog, SDSU. http://Edwards.SDSU.ed

Of Energy: Argonne National Labs: http://The

st.com On the origin of specie

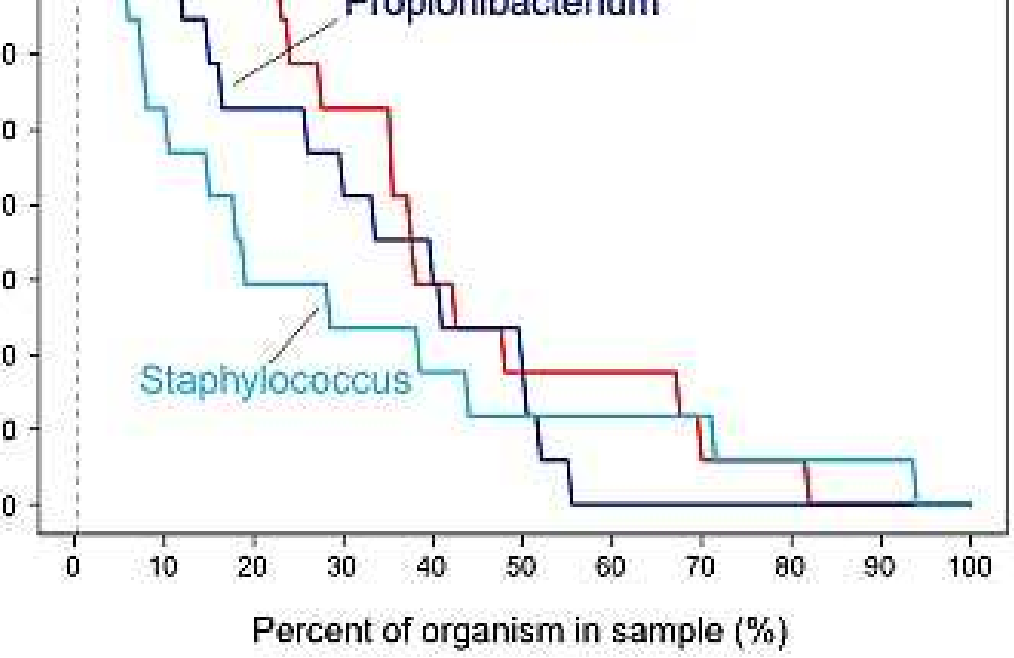
s maketh man

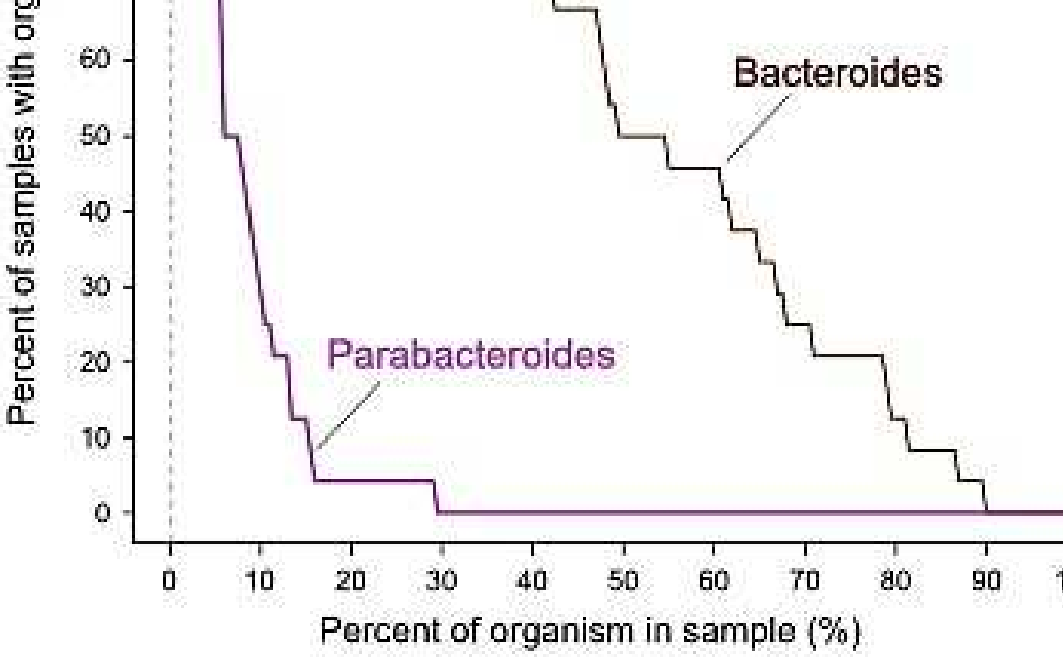


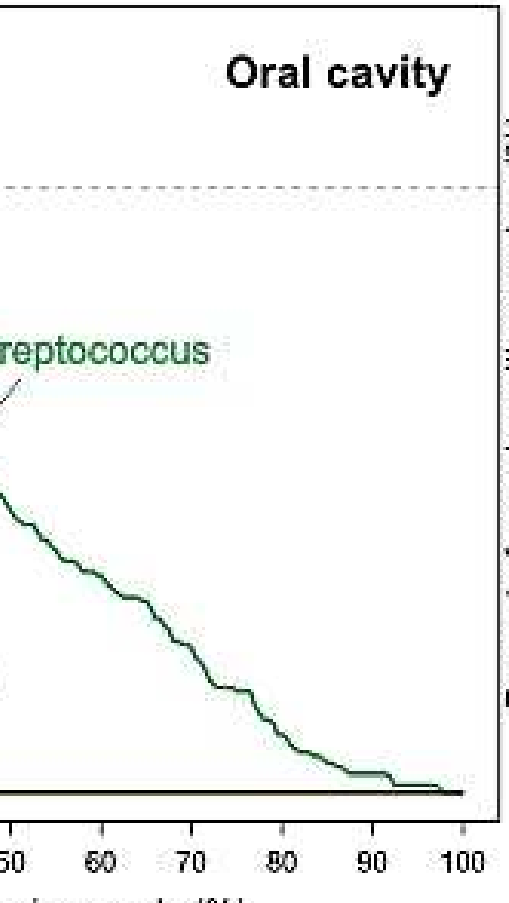


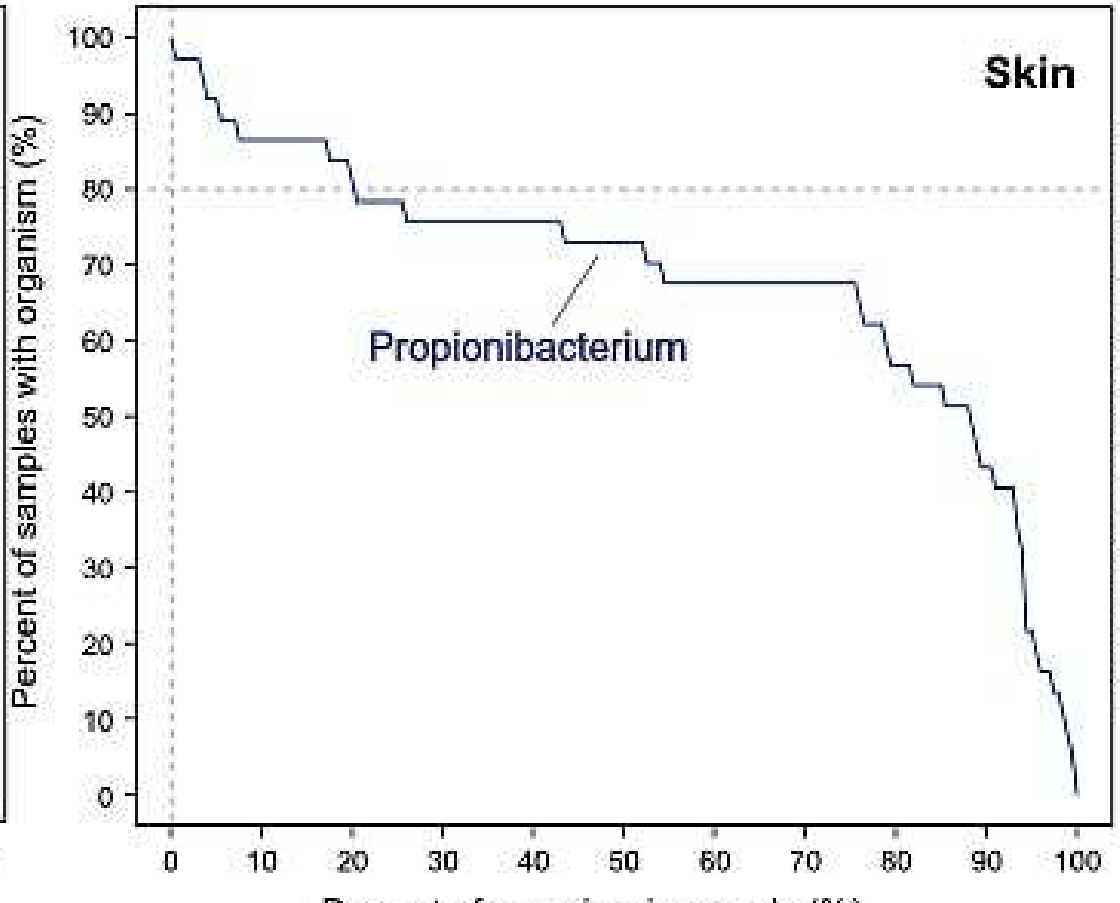
‘The Econ
Aug 18,

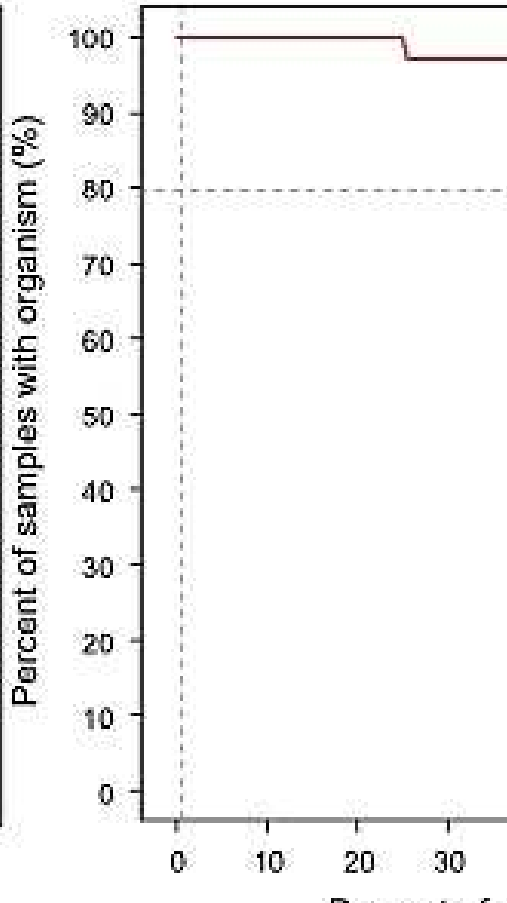
“Man is a Sup


Propionibacterium
Staphylococcus
0
10
20
30
40
50
60
70
80
90
100
Percent of organism in sample (%)


Bacteroides
Parabacteroides
Percent of samples with organism (%)
0
10
20
30
40
50
60
Percent of organism in sample (%)


Oral cavity
reptococcus
50
60
70
80
90
100
m in sample (%)


Skin
Propionibacterium
Percent of samples with organism (%)
0
10
20
30
40
50
60
70
80
90
100
Percent of organism in sample (%)


Percent of samples with organism (%)
0
10
20
30
Percent of

~~with a gutful of bacteria~~

Dave Relman's group: C
Microbiome Assembly a
Body Sites in Low-Birthw
MBio. 2013 Oct 29;4(6)

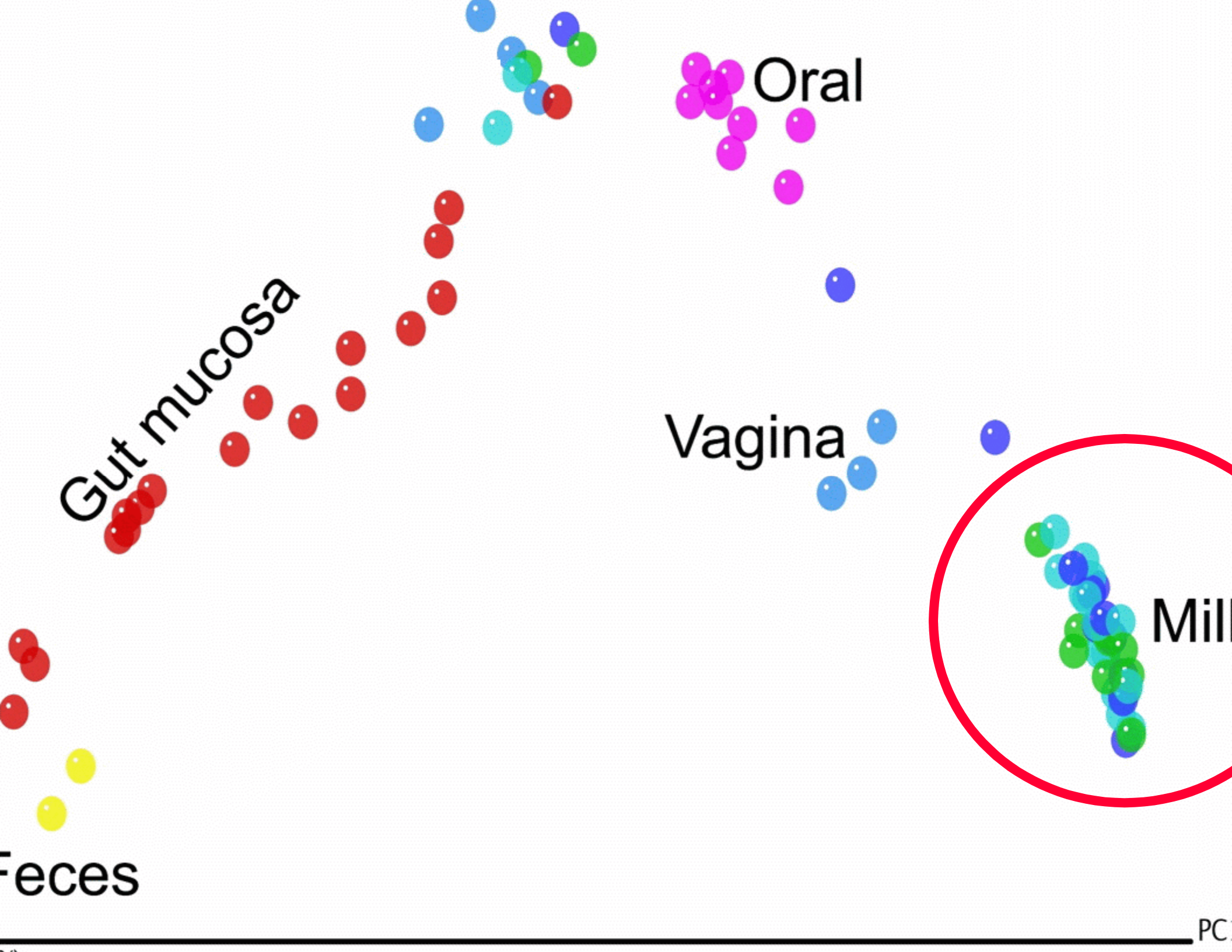
Jessica Hamzelou

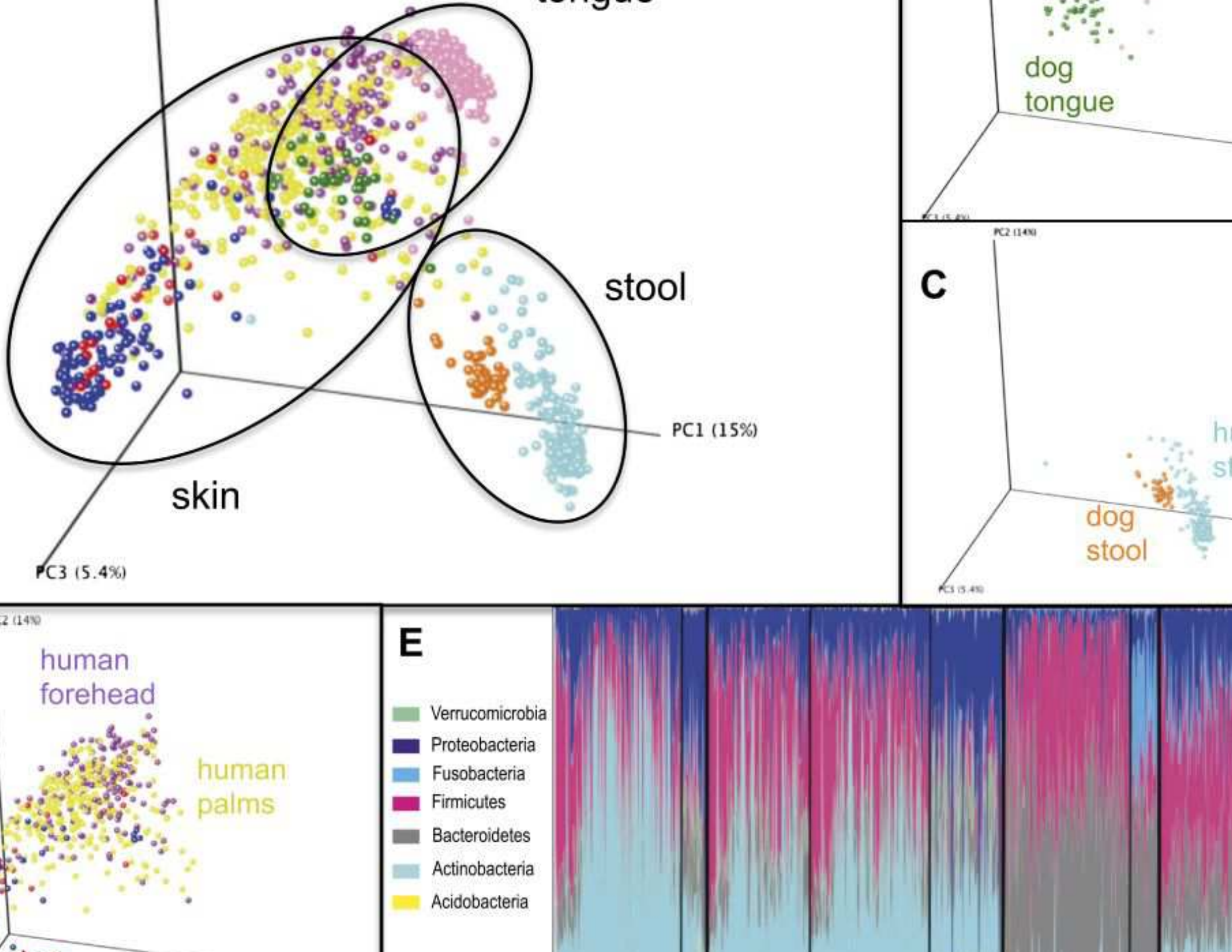
e and save

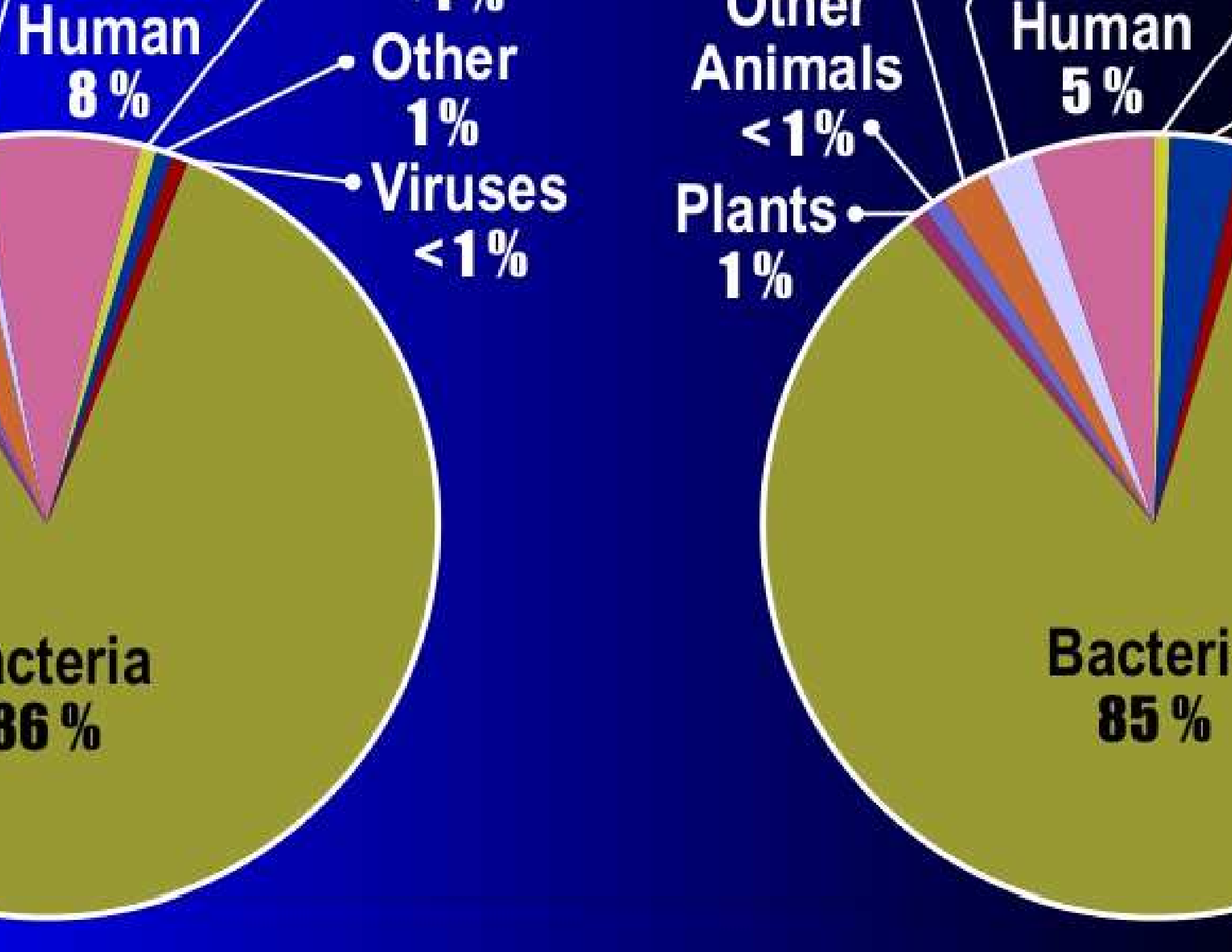
o-organisms Topic Guide

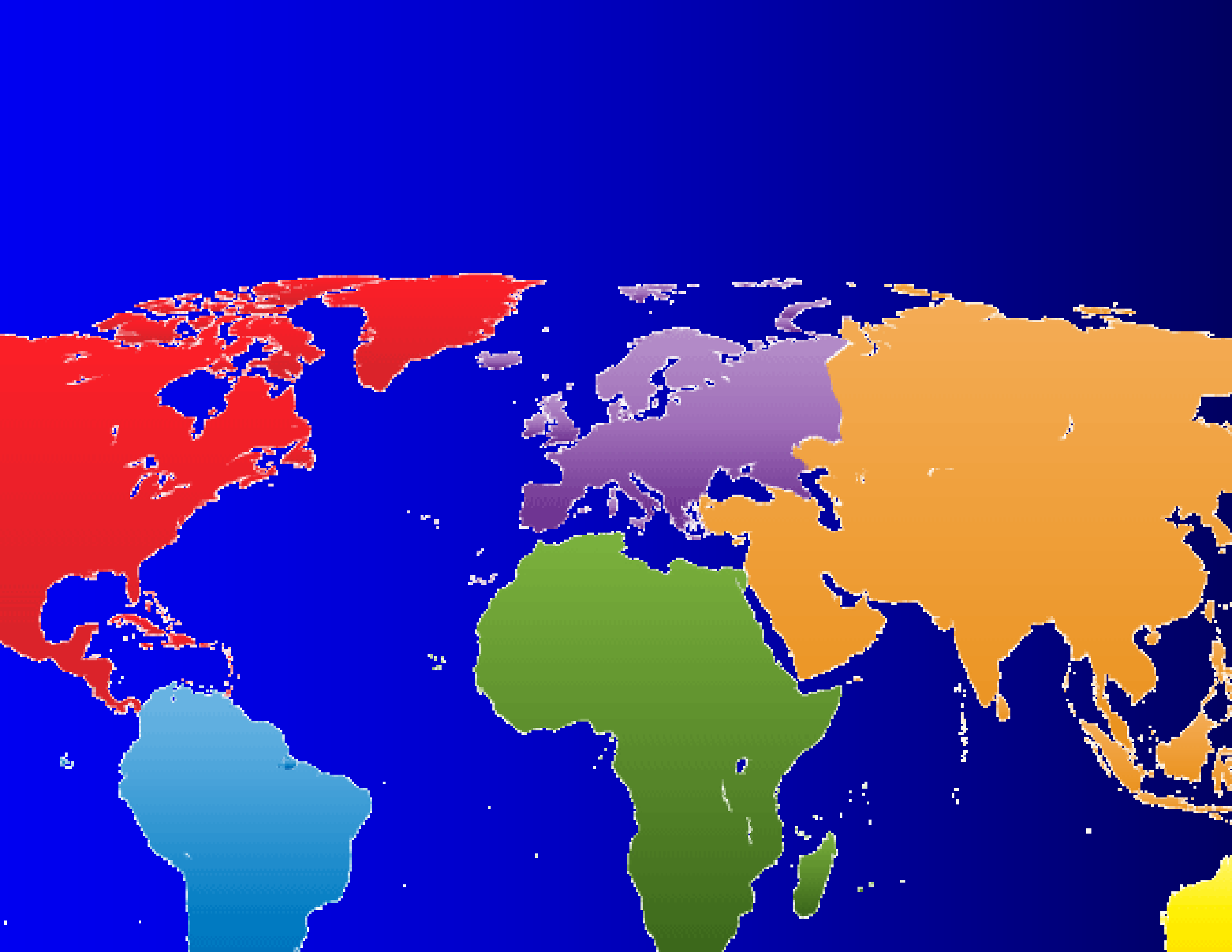
e fetus lives in a sterile world, protected
l its mother's gut and cover the surface of
as thought to be collected at birth - either
e environment it is born into. But it's time
t we are in fact born dirty - bacteria
ere they begin to shape our immune




Oral
Gut mucosa
Vagina
Mil
Feces
PC


tongue
stool
skin
PC1 (15%)
PC3 (5.4%)
dog
tongue
C
PC2 (14%)
dog
stool
human
forehead
human
palms
E
Verrucomicrobia
Proteobacteria
Fusobacteria
Firmicutes
Bacteroidetes
Actinobacteria
Acidobacteria


Human
8 %
Other
1%
Viruses
<1%
cteria
86 %
Other
Animals
<1%
Plants
1%
Human
5 %
Bacteri
85 %



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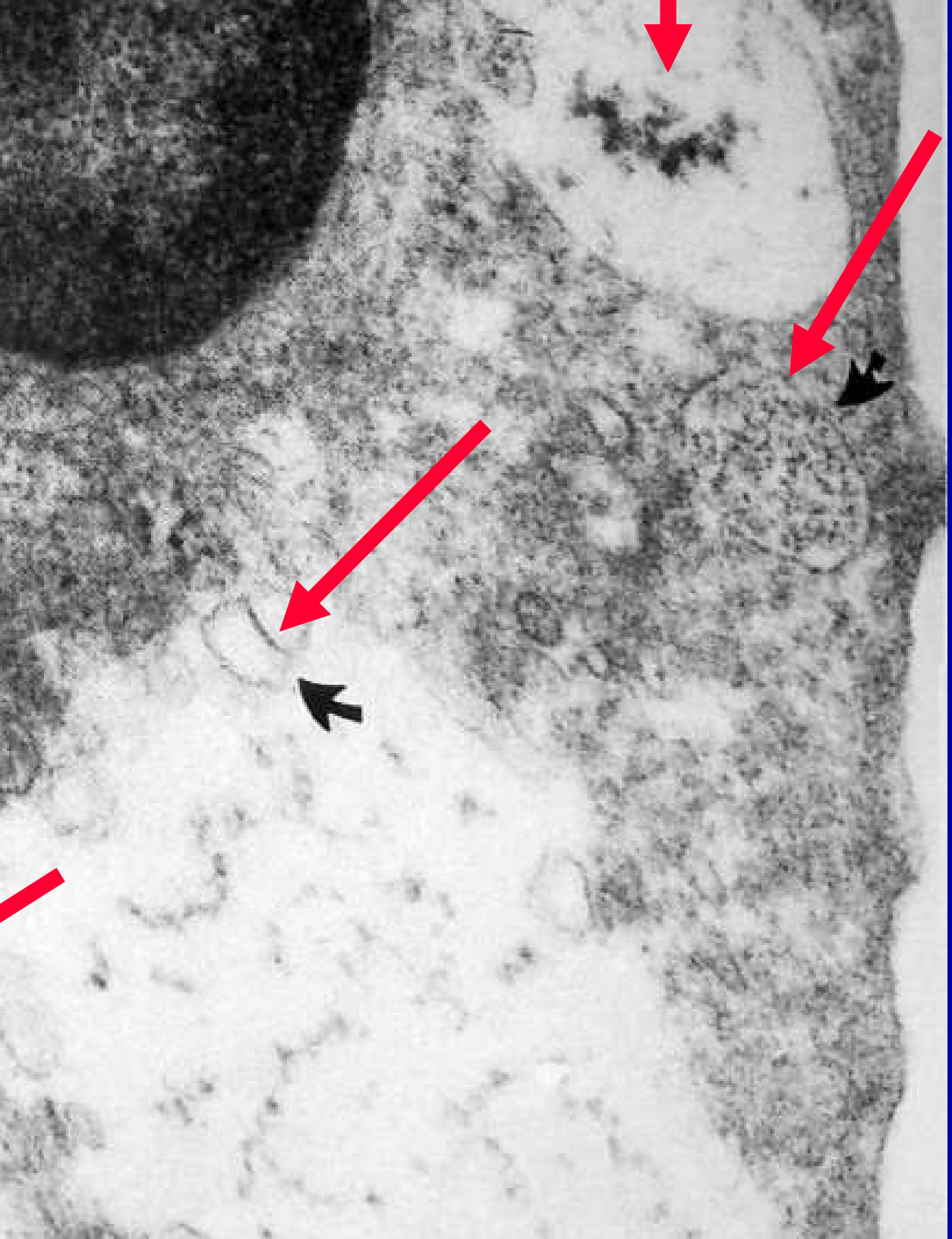
-*Helicobacter pylori* is found in ca
(as is *Porphyromon*
And in per

man first reported microbial DNA in bloo

.. and in amniotic fluid (2008)

me changes in fact seem to be a *result* o
immune dysfunction

es accumulate gradually during life. Gen
d metagenome suppress innate immun



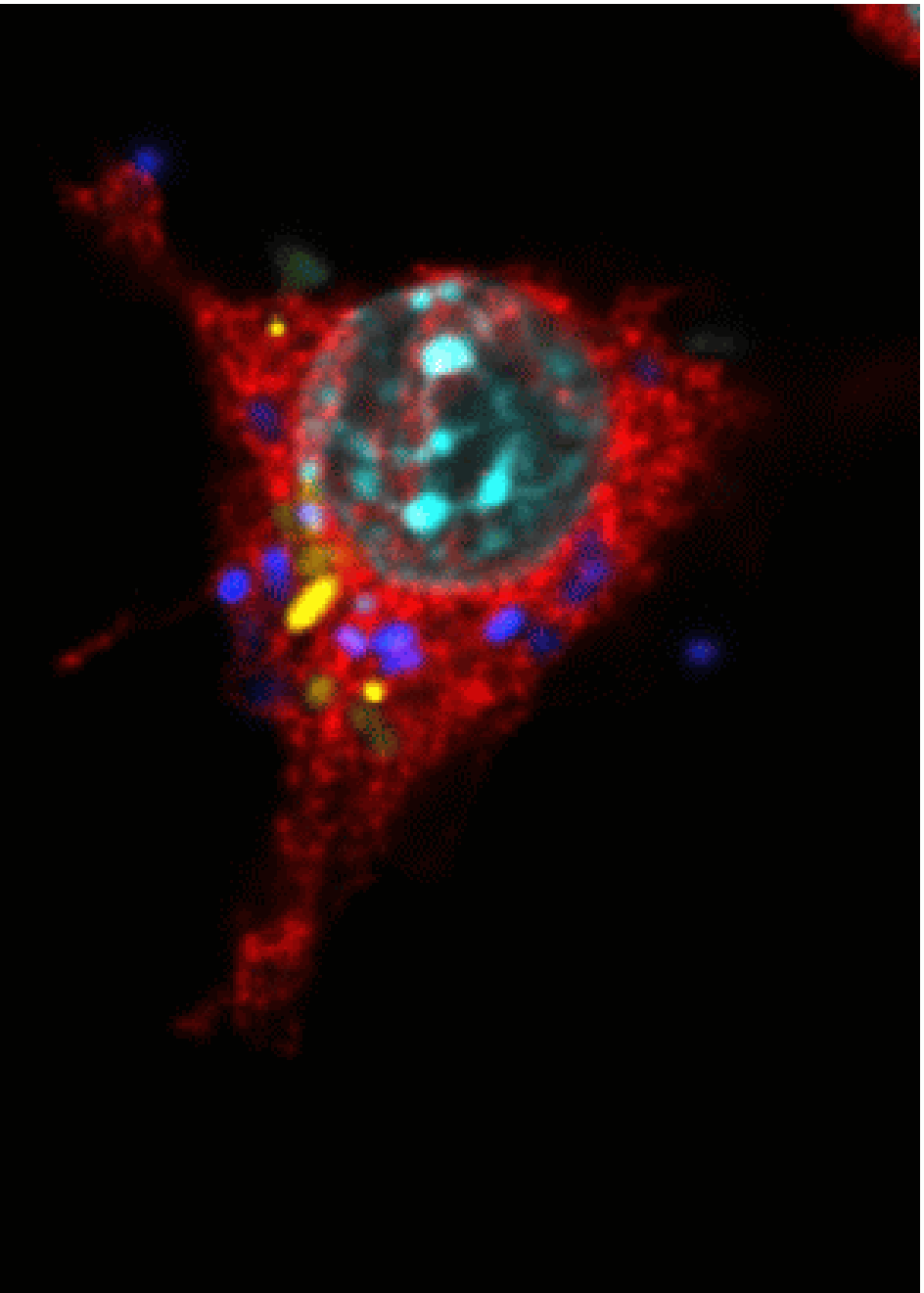
Columbia: TEM
taken of a mon
the vitreous of
sarcoidosis pat
hundreds of tin
(in colonies) ha
parasitized this

The very phag
are supposed t
bacterial patho
providing safe
them

tend Evade the Immune

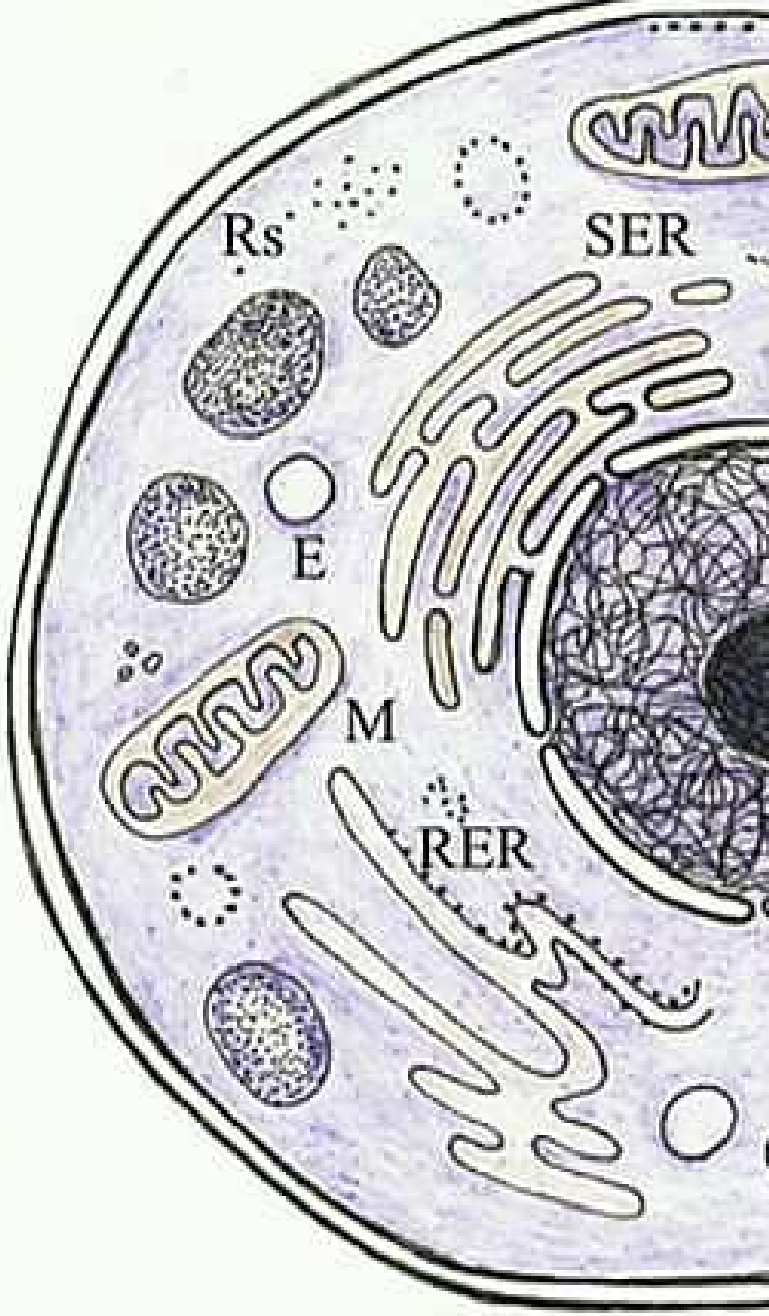
n quickly evolve to resist engulfment by macrophages, s

By Laasya Samhita | De

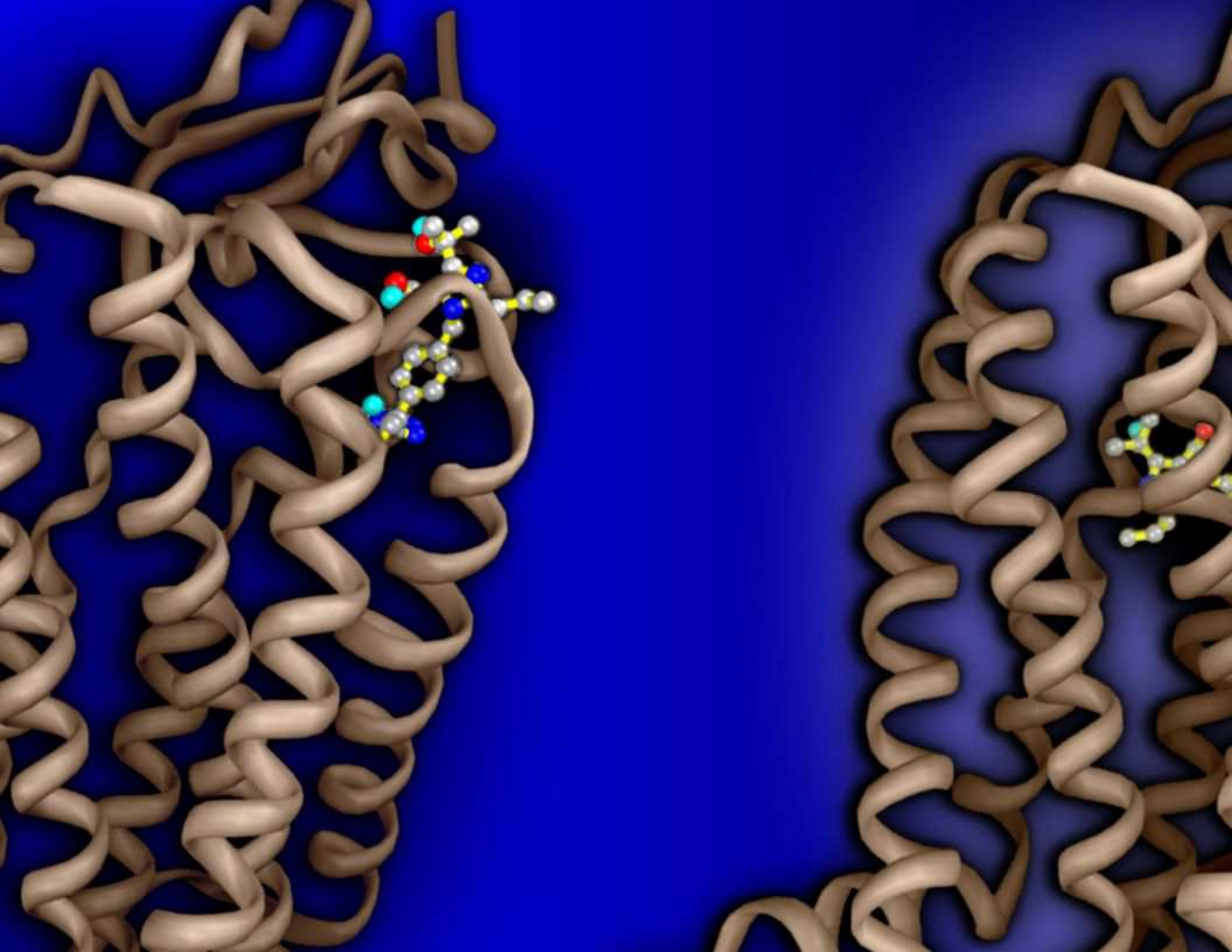


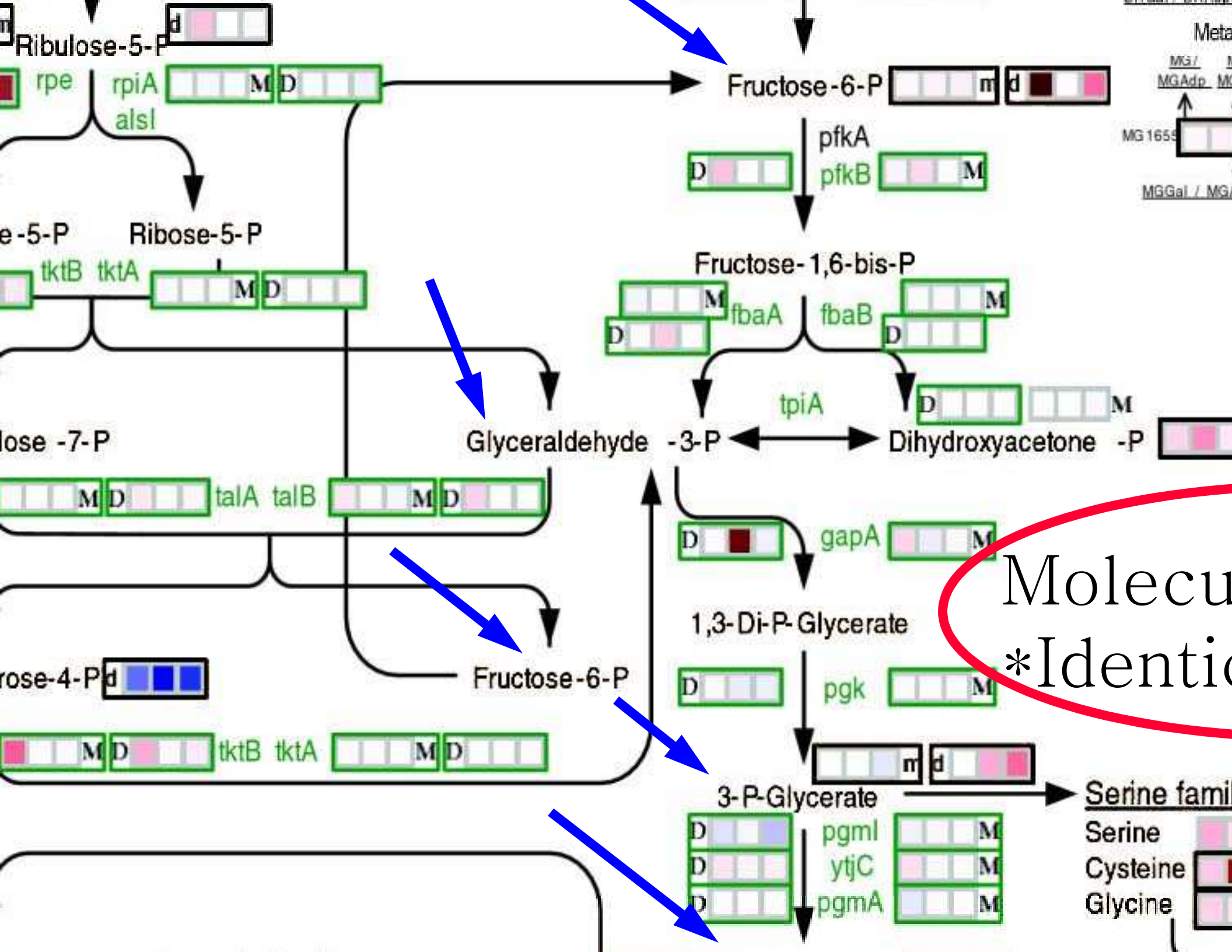
Bacteria exposed to antibiotics r
mutations that allow them to dev
the drugs, and this process is fai
understood. Scientists have now
evolution of bacterial resistance
agents: cells of the immune syst
published in *PLOS Pathogens* toc
12), a team led by Isabel Gordo
Gulbenkian de Ciência in Oeiras,
challenged the common human i
bacterium *Escherichia coli* with m
macrophages—immune system c
foreign elements like bacteria—a
rapid evolution of mutants capab

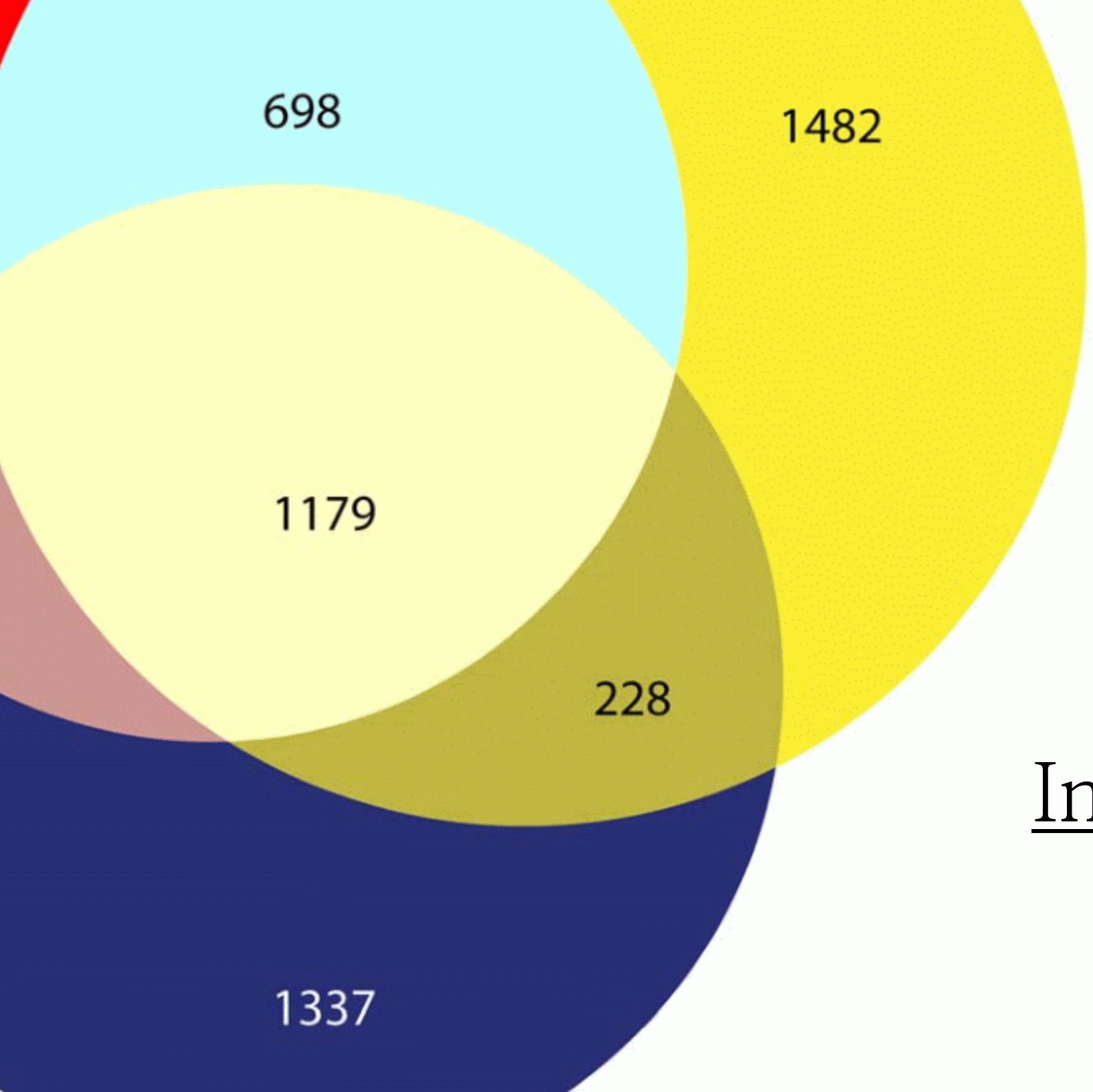
Computational
roscope



...how living cells
and battle




Ribulose-5-P
rpe
rpiA
alsI
Fructose-6-P
pfkA
pfkB
Ribose-5-P
tktB
tktA
Fructose-1,6-bis-P
fbaA
fbaB
tpiA
Glyceraldehyde -3-P
Dihydroxyacetone -P
talA
talB
gapA
1,3-Di-P-Glycerate
Fructose-6-P
pgk
tktB
tktA
3-P-Glycerate
pgmI
ytjC
pgmA
Serine
Cysteine
Glycine



Multiple
OND a

The

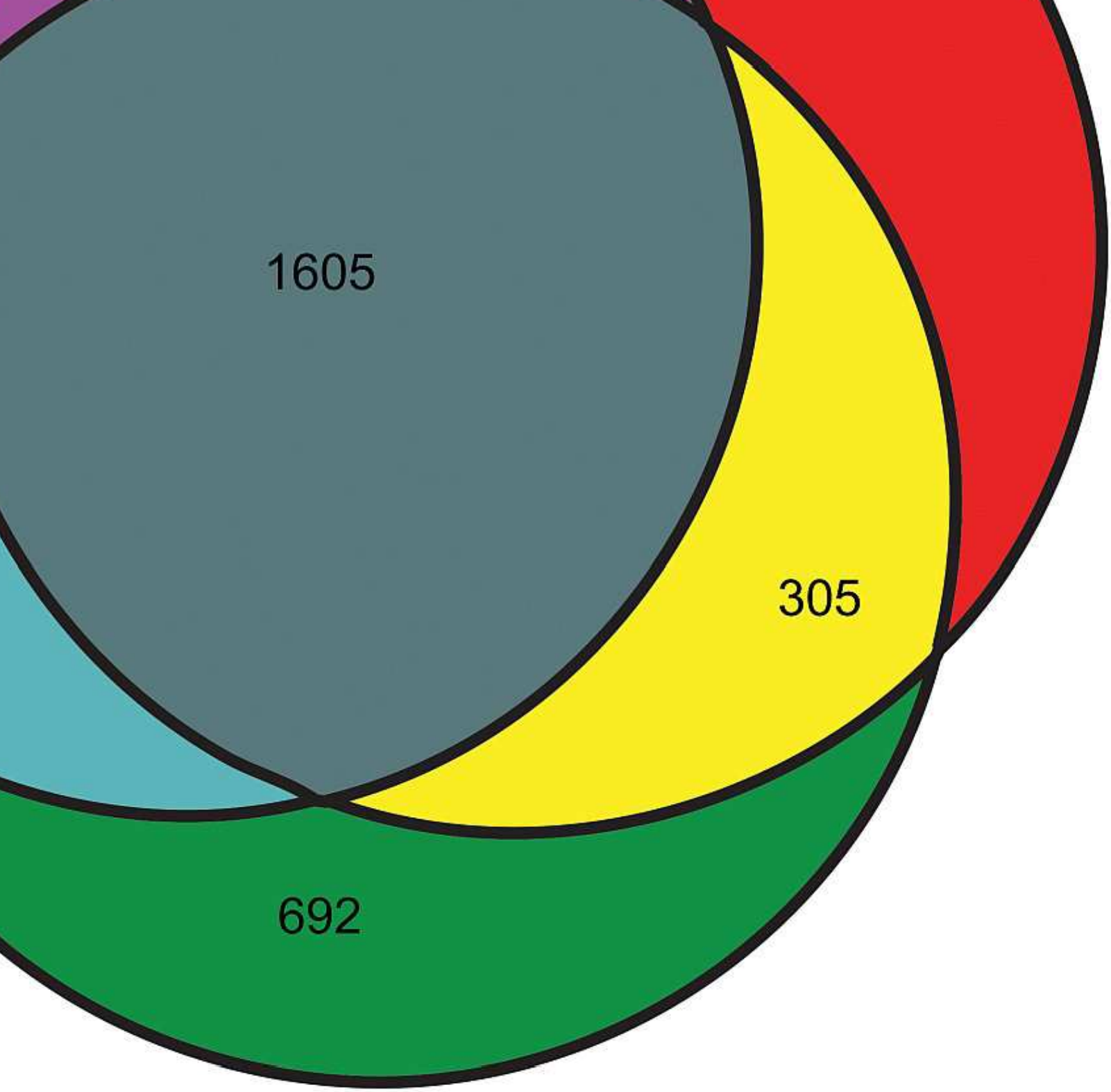
A r

Interactor

due to

infec

Nucl



The Fr
is h

up regulated

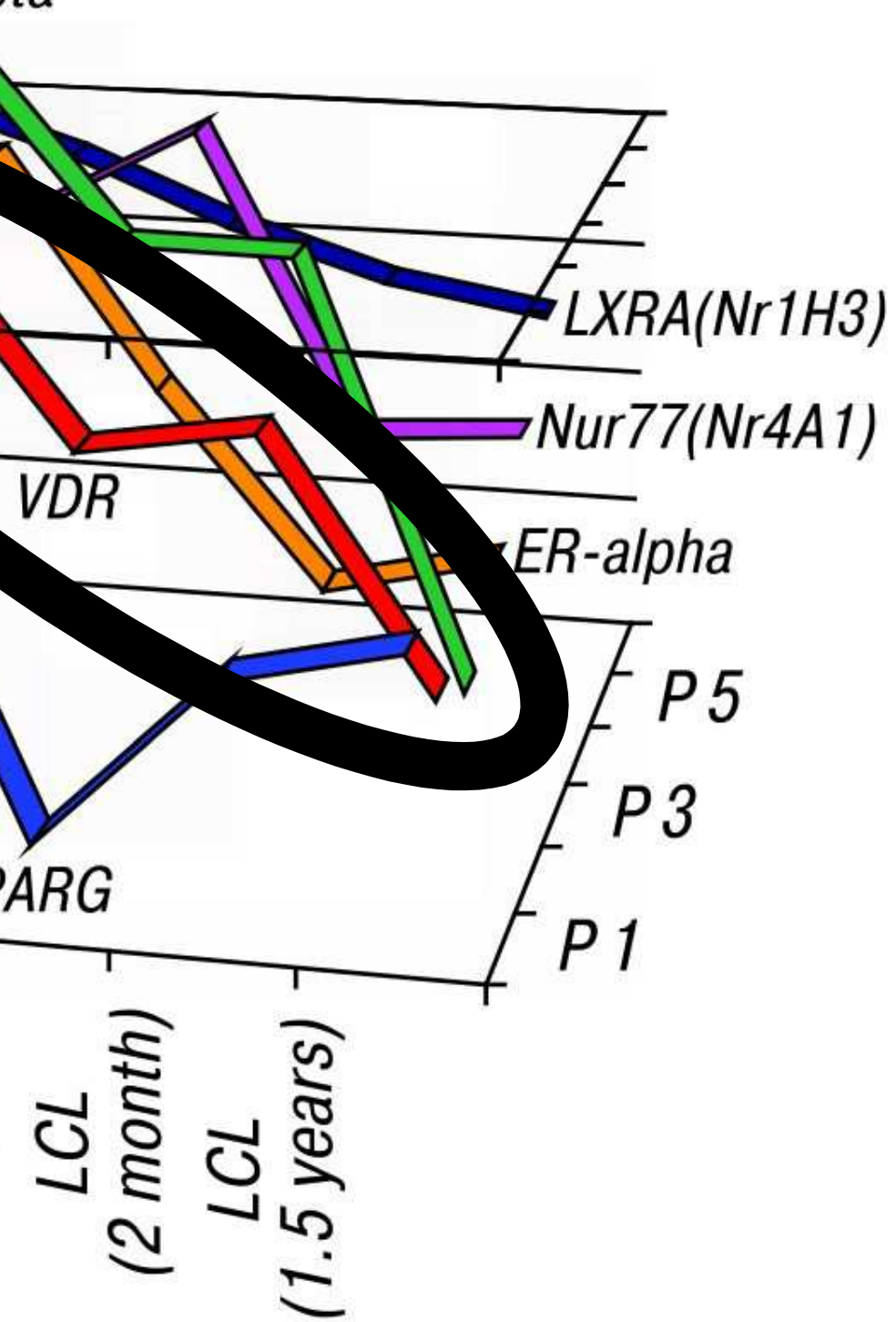
down-regulated

lear receptor*

ulated 3.3 fold*

12,788 cDNA micro
used to profile gene
in U937 macrophag
with *M.tuberc*

"463 differentially
genes .. 97 unk
intracellular sig
cytoskeletal rearra
apoptosis, transc
regulation, cell
receptors, cell-n
immunity as well as
cellular metabolic

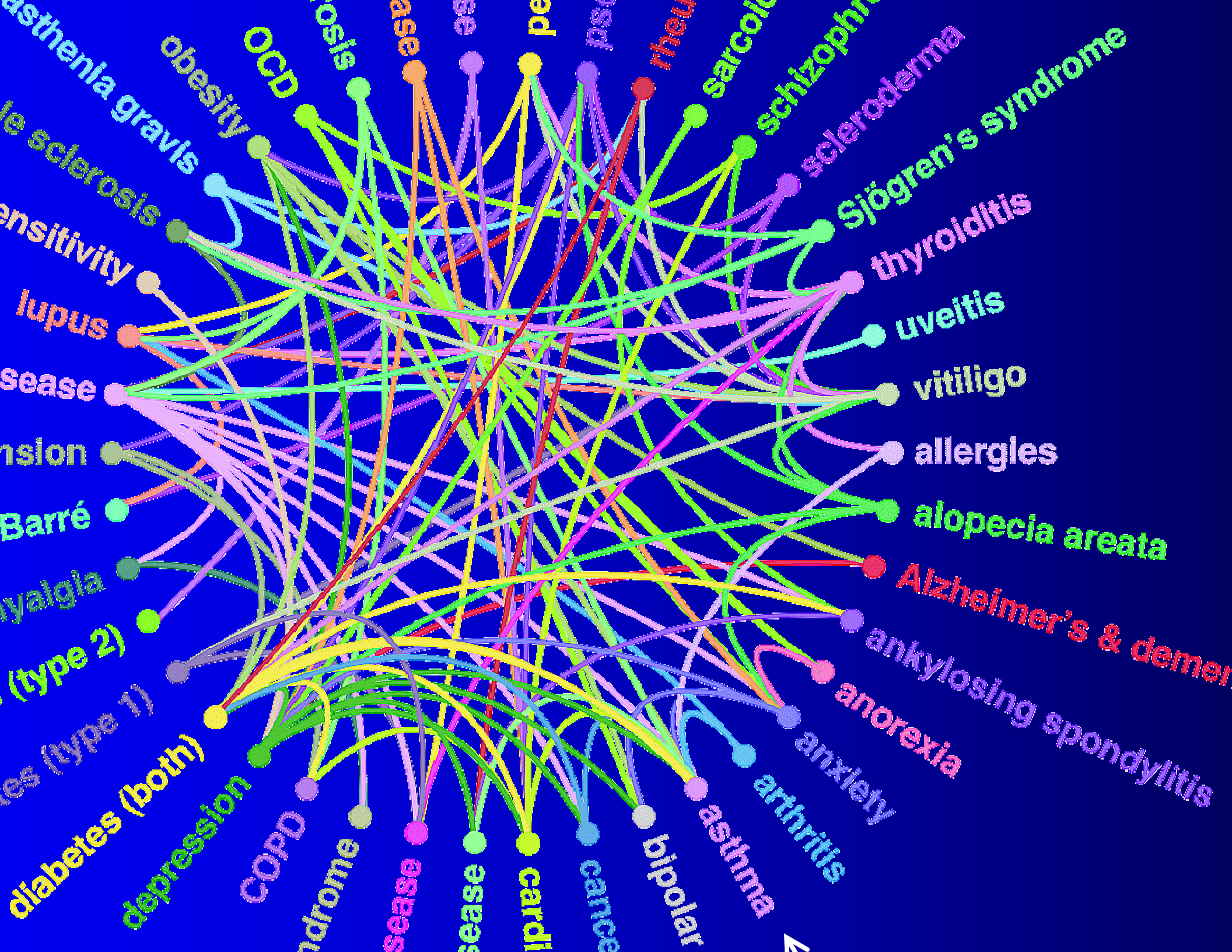


Persistent EBV do
regulates VDR mo
fold.

Note that the most pro
is in the immature lymp
lines (LCL) after 1.5 ye
exposure

Species Known to

Mycobacterium t


asthenia gravis
obesity
OCD
sclerosis
sarcoid
schizophre
scleroderma
Sjögren's syndrome
thyroiditis
uveitis
vitiligo
allergies
alopecia areata
Alzheimer's & demer
ankylosing spondylitis
anorexia
anxiety
arthritis
asthma
bipolar
cancer
carditi
sease
COPD
depression
diabetes (both)
es (type 1)
(type 2)
yalgia
Barré
nsion
sease
lupus
nsitivity
e sclerosis

to survive inside human phagocy
have had to evolve to knock out t
ey don't have to deal with the ce
defenses

ens, and only in *Homo sapiens*, one Nuc
resses genes for TLR2, as well as the Ca

Activates VDR

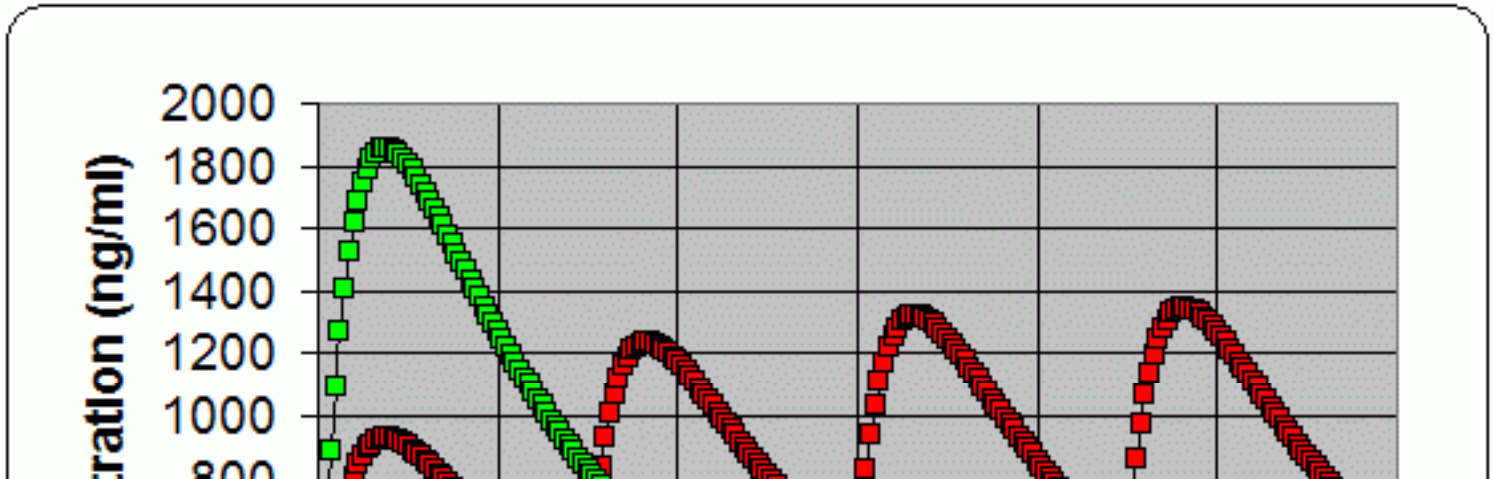
VDR

VDR

eg: Gliotoxin
(Aspergillus)

Ac
Tra

Re
Inn

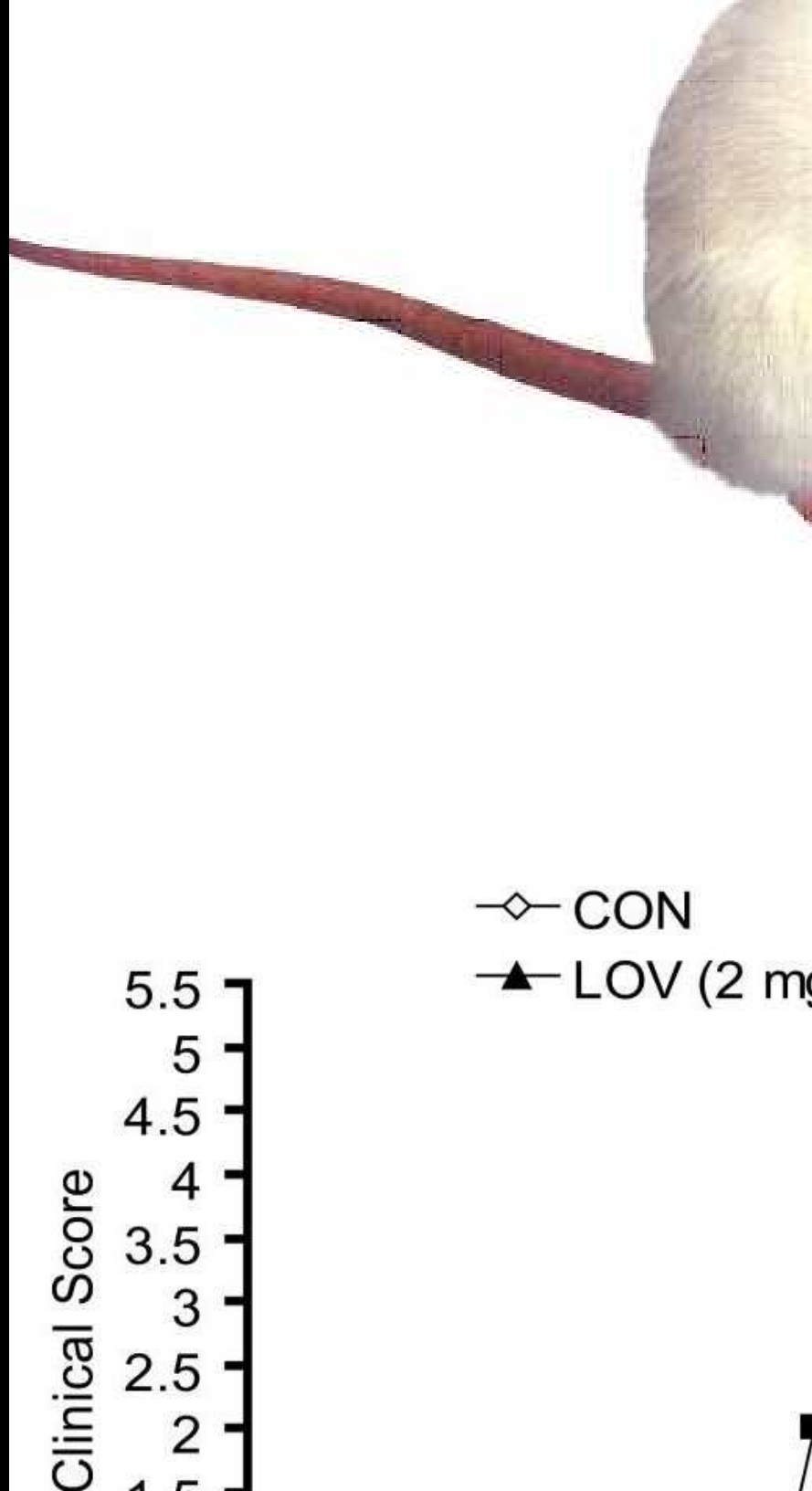


80
25
1
0.47

C

Peak(ss)
Trough(ss)
tmax(ss)[h
Cave




CON
LOV (2 mg
Clinical Score
5.5
5
4.5
4
3.5
3
2.5
2


rthritis
roiditis
Uveitis
oriasis
Mellitus
ndrome
Disease
atosus
rthritis
's, UC]
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lerosis
Mellitus
rthritis
Disease
matica
rthritis)
Disease
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* MONOT
* NO OTHE
25-D held at
Therapy NOT 'Pe
Improved i
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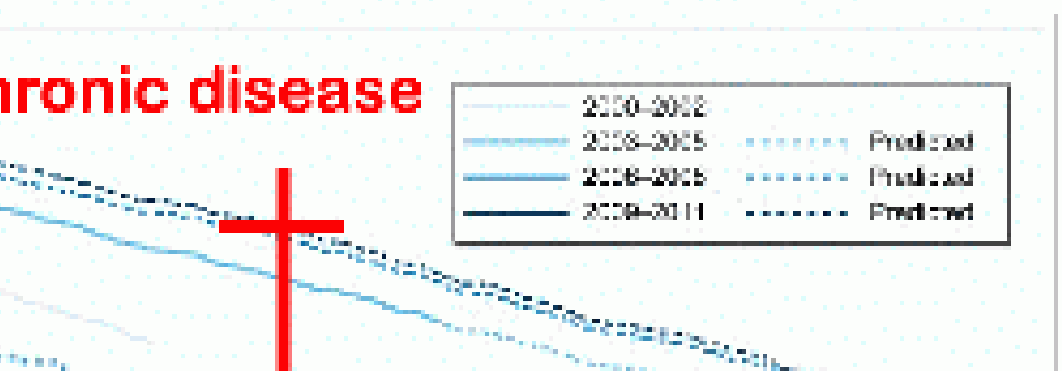
ion in cell metabolism which we kn
une' disease.

collaborators have demonstrated pr
with more than a decade of observ
n treating a variety of idiopathic di
point achieved is often reported as

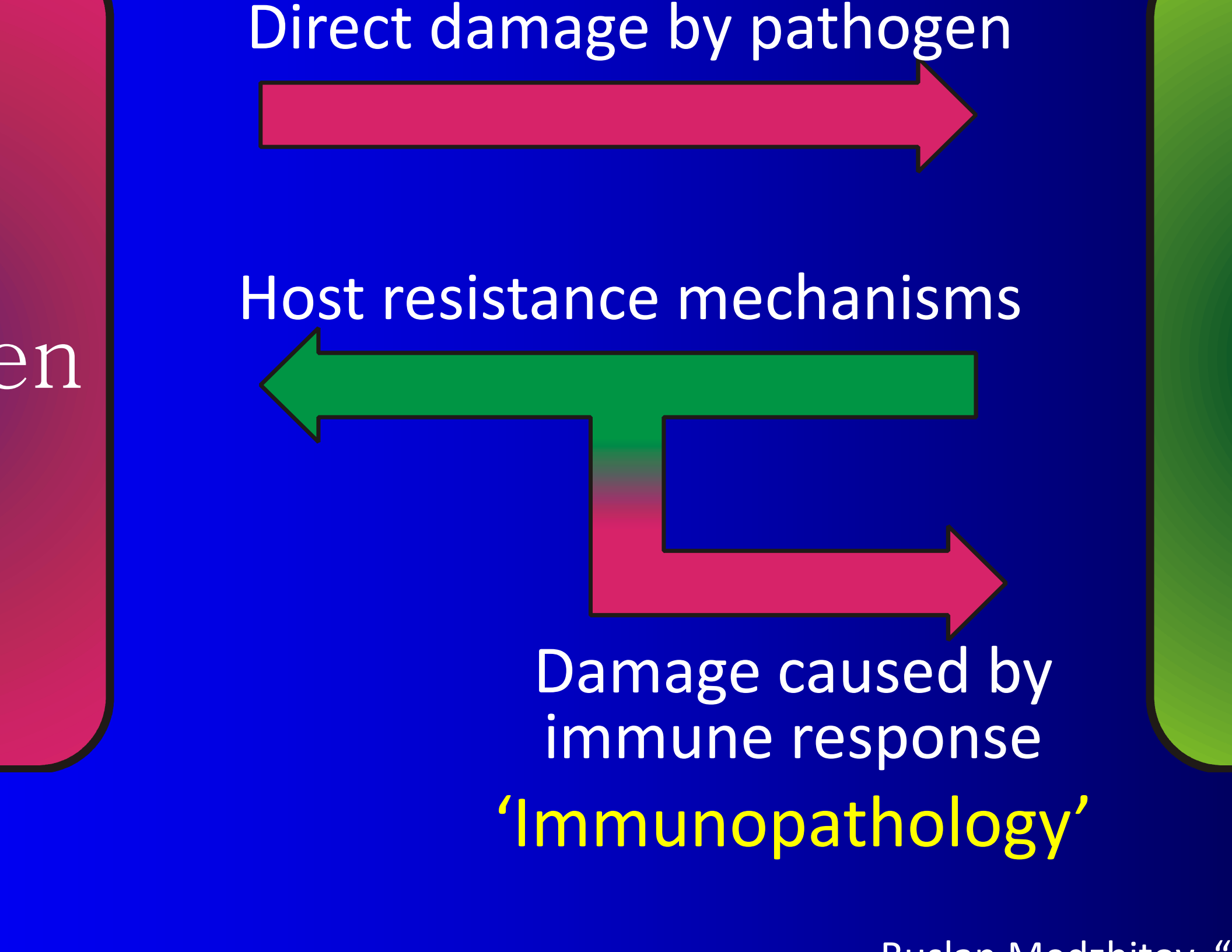
y preventing the intracellular micr

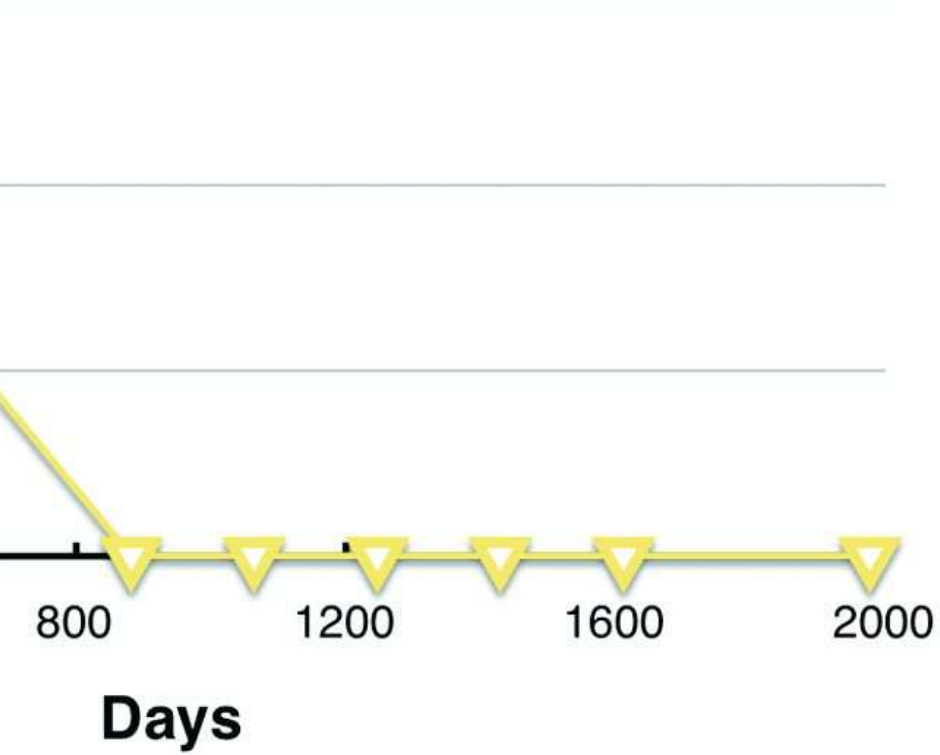
Question Time

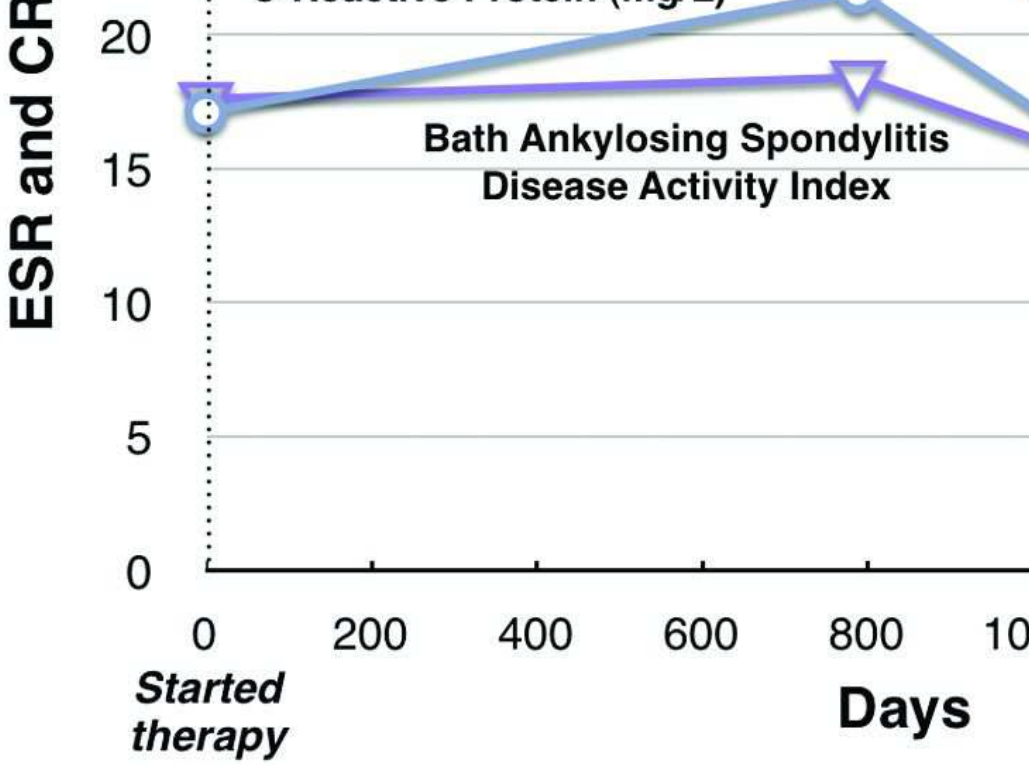
– There are many
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cer patients who not only
ainst cancer, but also
r diseases. So-called
large and growing
st because we are
and age increases the
ng cancer as well as

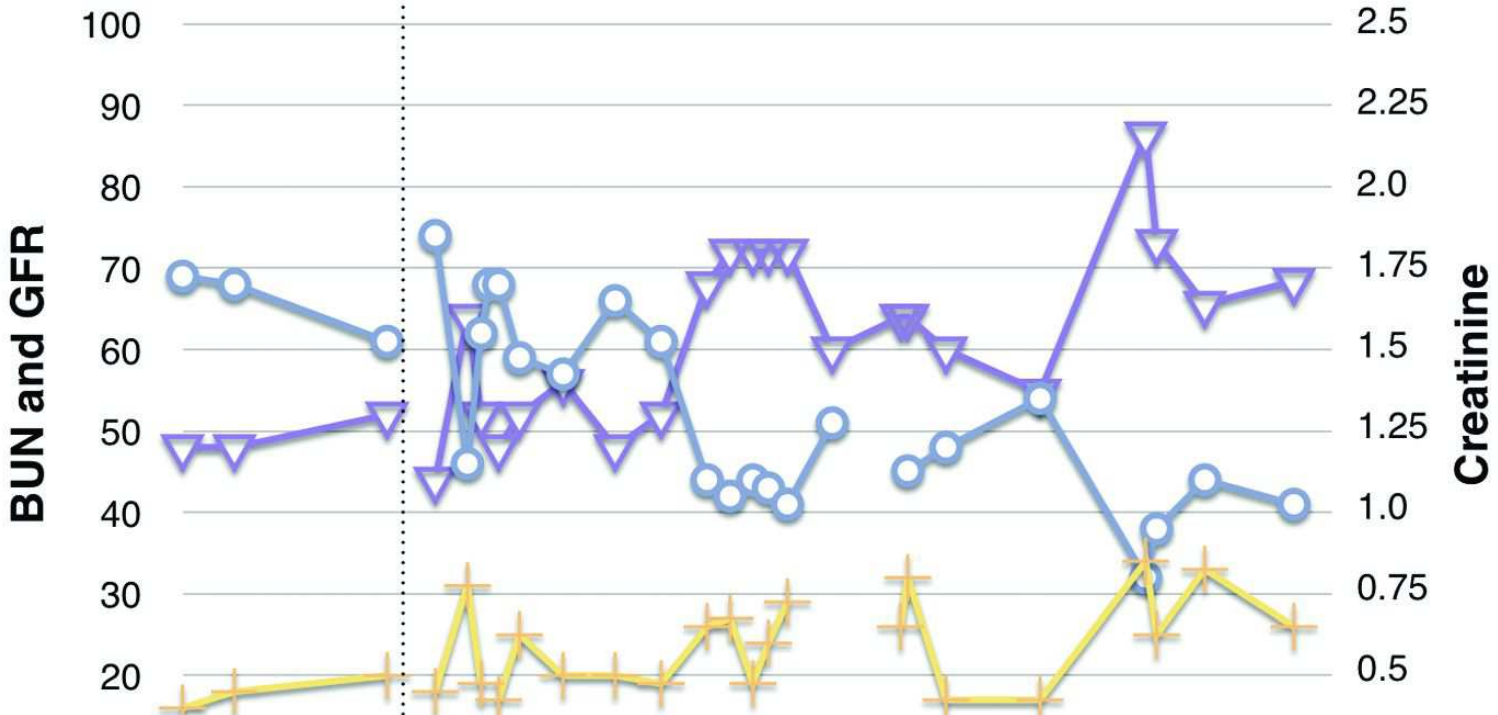


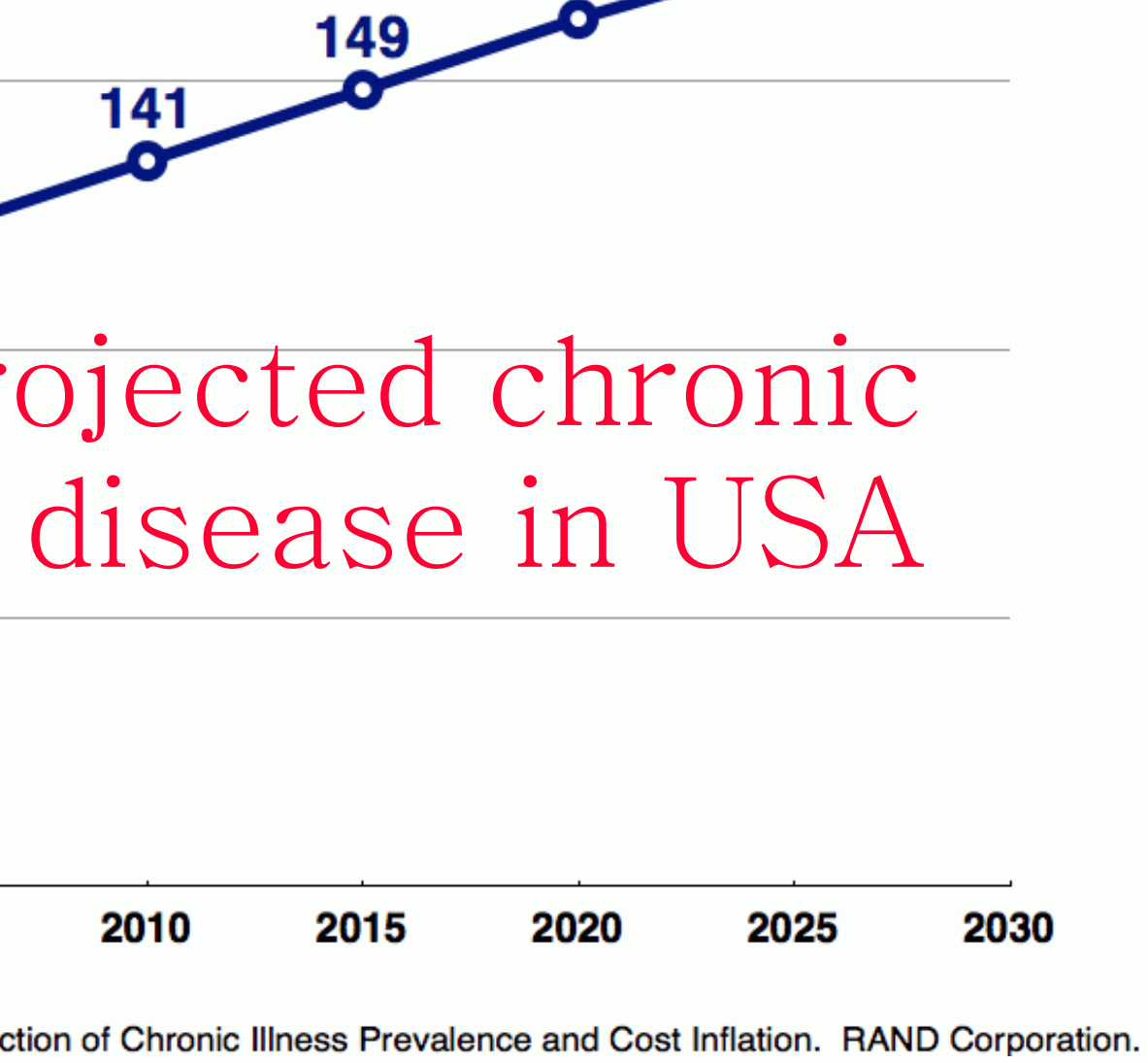
How much dis
diabetes, COP
obstructive pu
arthritis, depre
cardiovascula
for cancer su
the type of ca
overall picture
Other disease
negative impa
and five-year survival rate. For ex
cancer the five-year survival rate
without other diseases is 83 perc
with one or two other chronic dis
rate is 64 percent, while it is 50 p
with three or more diseases. This
figures from the Central Denmark
just been published in a special e


Direct damage by pathogen
Host resistance mechanisms
Damage caused by immune response
'Immunopathology'


800
1200
1600
2000
Days


ESR and CR
20
15
10
5
0
Bath Ankylosing Spondylitis
Disease Activity Index
0
200
400
600
800
Started
therapy
Days

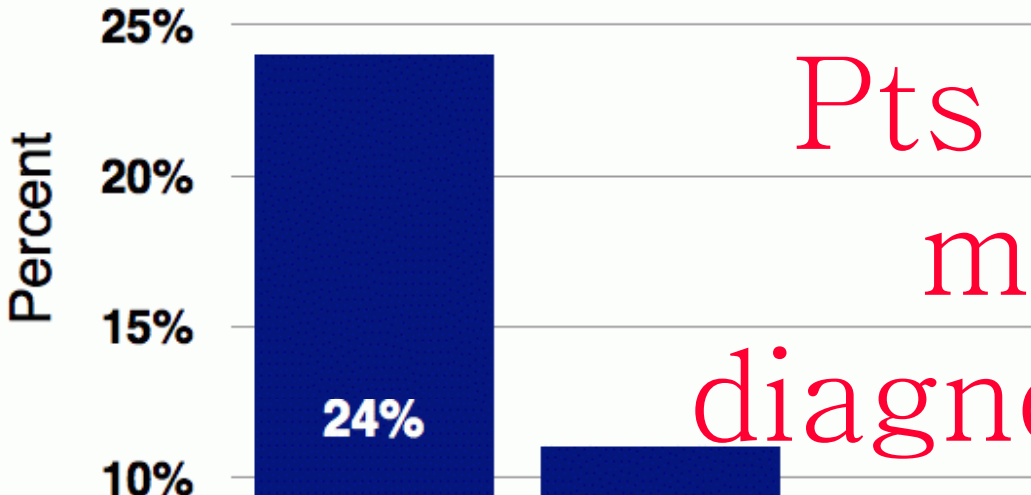

BUN and GFR
100
90
80
70
60
50
40
30
20
2.5
2.25
2.0
1.75
1.5
1.25
1.0
0.75
0.5
Creatinine



rojected chronic
disease in USA

49% of US adu
million, have a
chronic disea

ction of Chronic Illness Prevalence and Cost Inflation. RAND Corporation.



Pts
m
diagn