My Little
ALPHABET
BOOK
of
PROTEINS

Chu Wai Liew

Send feedback/questions to
chuwai.liew@gmail.com
Download the book at
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Antifreeze

In strange fishes living in deep, dark seas, we find proteins, we call them antifreeze.

Down below at -20, it’s chilly.

With antifreeze these fish can swim happily.

References

21. PDB ID: 1UBQ

22. PDB ID: 1QNX

23. PDB ID: 3I5A

24. PDB ID: 1FO4

25. PDB ID: 1POQ

26. PDB ID: 1Y0J
15. PDB ID: 1GZ2

16. PDB ID: 1JB0

17. PDB ID: 4HQE

18. PDB ID: 1VSP
PDB ID: 2QNH

19. PDB ID: 2KS4

20. PDB ID: 1TCR

Bovine Serum Albumin
It's cows that it's found in
It's a protein that’s energy giving
to keep cows chewing and mooing
Collagen

Found in our skin so smooth and stretchy
Also in bones and teeth white and shiny
Even in muscles so strong and tough
It’s collagen, a protein curiously enough

References

9. PDB ID: 4INS

10. PDB ID: 1PXZ

11. PDB ID: 1VGL

12. PDB ID: 2LYZ

13. PDB ID: 1HX6

14. PDB ID: 1AOI
References

1. PDB ID: 1WFB

2. PDB ID: 4F5S

3. PDB ID: 1BKV

4. PDB ID: 1K4R

5. PDB ID: 3ERT

6. PDB ID: 3GHG

7. PDB ID: 1GFL

8. PDB ID: 1HHO

Malaysia, Africa, India, even Fiji mosquitoes like it hot and sweaty
Carrying a virus that’s called dengue one bite makes you feel achey and itchy
Who in the world has estrogen receptors
It’s found in all mums, aunts, grandmas and daughters
These useful receptors help all girls to grow
from little ladies today to women tomorrow

Zinc fingers as proteins are truly very tiny
You find them in plants, animals, even you & me
Found in all shapes & sizes they do different jobs
like making sure blood cells form red-shaped blobs
Yersinia, saying it sure is a mouthful
It's a bug that can make you quite sick to be truthful.
YPM it produces, a toxic superantigen
Quite how Yersinia infects still remains uncertain

All kids they run, jump, climb and then fall
Home they come crying, I'm bleeding they call
Fibrinogen inside them helps blood stop oozing
leaving a scab that they just can't help picking
Green fluorescent protein, it’s so green that it glows
Found in jellyfish carried by pacific undertows
Attach this green glow to an infectious virus
and see it spread widely in cells from inside us

Breakfast, lunch and dinner it’s food
broken to pieces as soon as it’s chewed
Once in our tummies it breaks down in time
By a xanthine oxidoreductase enzyme
What’s in a biofilm, look closely to see
Crowds of pseudomonas, bugs oh so tiny
There’s a protein inside them called WpsR
Makes bugs move in close till they’re sticking together

Oxygen, we breathe it, it’s really essential
Needed to continue every life cycle
Carried within us by haemoglobin
delivered from lungs to every organ
Insulin, it’s carried on a blood red river straight from pancreas to muscles and liver. After a meal when we’re filled up with sugar, insulin helps us to store it for later.

Ves V 5

It’s not only bees that are black & bright yellow but yellow-jacket wasps just so that you know. A Ves V 5 allergen found in their sting can make you cry ‘OUCH’ & cause painful swelling.
Ubiquitin, it’s found almost everywhere
From yeast to plant leaves, even our hair
Proteins no longer needed their duties done
ubiquitin tags then sends for destruction

Spring flowers in bloom and birds singing in trees
Yellow puffs of pollen are sprinkled by bees
Jun a 1, that’s found in cedar tree pollen
can make some sneezy, eyes itchy and swollen
A clock is tick, tick, ticking inside us
In bacteria, KaiB helps to count the hours
Morning, wake up and by noon we're hungry
Soon comes night time when we all feel sleepy

With viruses near they make you feel sick
So call in the T cells, just make it quick
T cell receptors finding cells all infected
Destroys them until they're done and dusted
Sea anemones may seem soft, shy and still
But their arms sway with the waves, waiting to kill
Carrying sticholysin 1, a poison to others
it helps them catch food or scare away predators

Bacteria within us lie in wait to attack
But with lysozyme near they pop and they crack
Lysozyme’s found in our blood, sweat and tears
It’s clear it protects against germy fears
When you catch cold, you sniff and you snuffle
It’s a virus inside you that’s causing you trouble
It lies in a bubble, made of major coat protein
a small round package that’s nasty and mean

Proteins, they keep us running smoothly from the inside
Ribosomes our protein builders are scattered far and wide
When ribosomes meet mRNA, the building begins
tRNA lends a helping hand & together they make proteins
In the world of bacteria lives S. aureus
When there’s hundreds of them they can gang up on us
With QsrR in them they’re strong at their peak
But a good dose of quinone can make them feel weak

Girl or boy, dark or fair, DNA makes us who we are
Carrying all our information, it stretches long and far
So just like a string wound around a ball
DNA is bundled into a nucleosome so small
Ovocleidin-17

Ovocleidin-17, it makes eggshells hard and tough
When an egg is ready & it’s waited long enough
there’s a tap, tap, crack, then a small beak appears
a little chick hatches with soft golden feathers

Photosystem 1

Sunshine so bright, gives life to us all
From bacteria so tiny to trees far too tall
Photosystem 1, used by all plants we see
helps them trap sunlight to turn into energy