



Vitamin D

Evolution and Understanding

Dr David S Grimes August 8th 2023



Earth

4.5 billion years

A photograph of a hydrothermal vent chimney, likely a carbonate structure, illuminated by a light source in a dark underwater environment. The chimney is composed of numerous vertical, white, mineral-rich spires of varying heights, some reaching several feet. The base of the chimney is surrounded by a dark, rocky substrate. The background is a deep, dark blue, suggesting the depths of the ocean.

Life began

3.5 billion years



bacteria & viruses

2.5 billion years

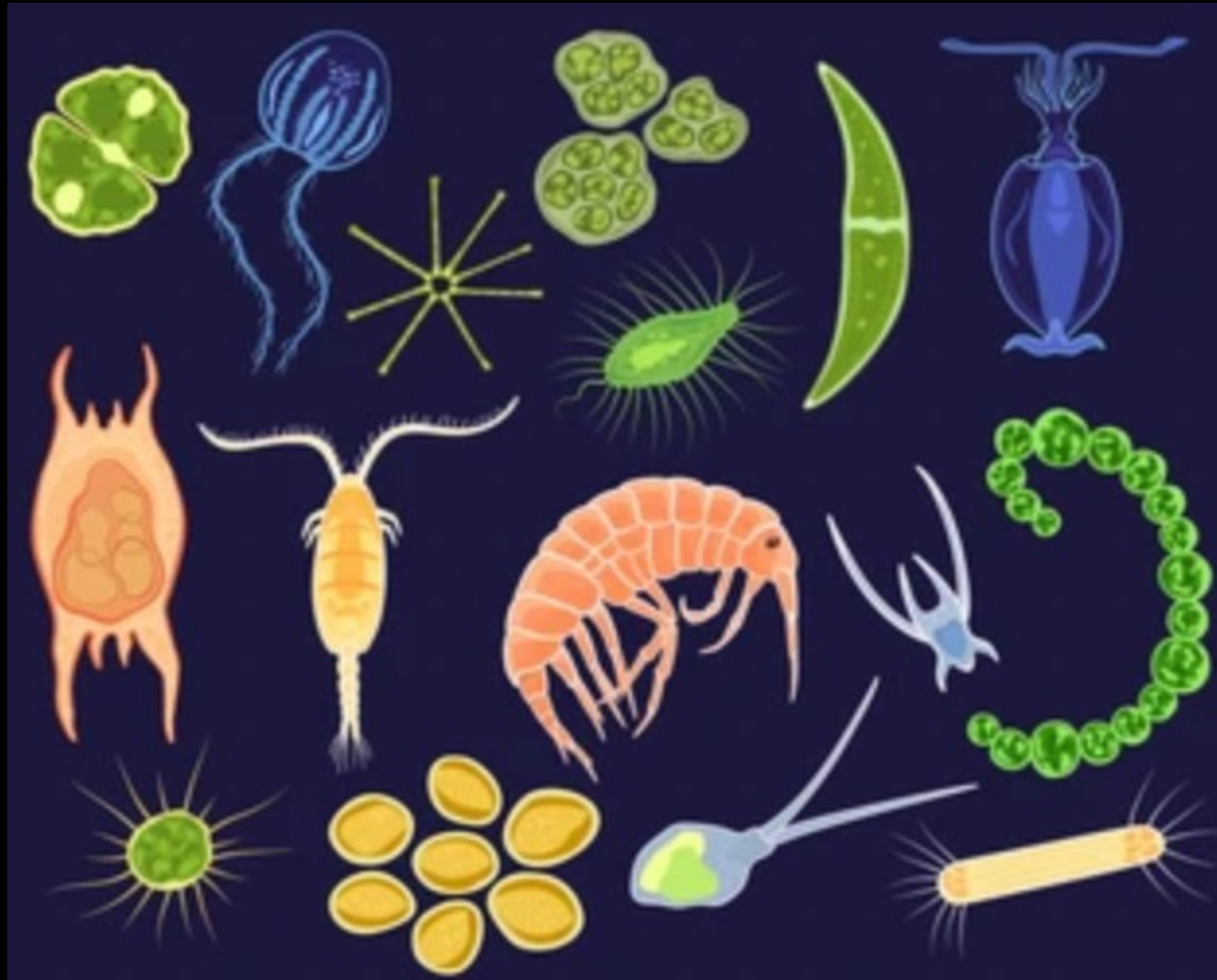


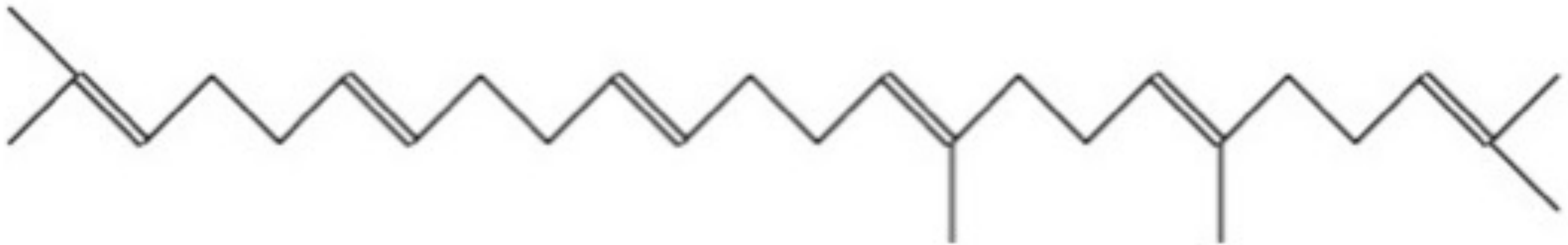
Plankton

1.5 billion years

Plankton

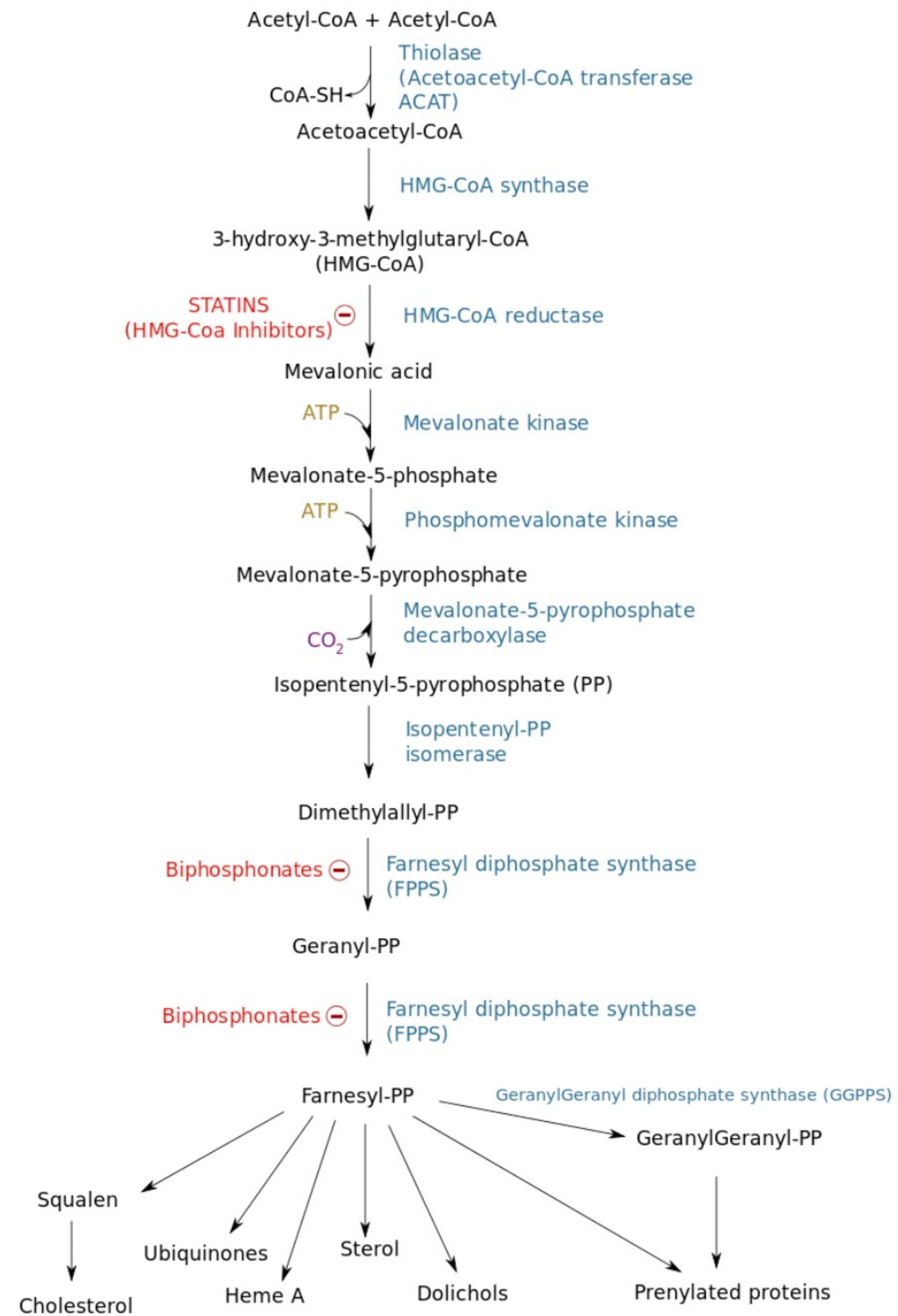
vulnerable to solar UV

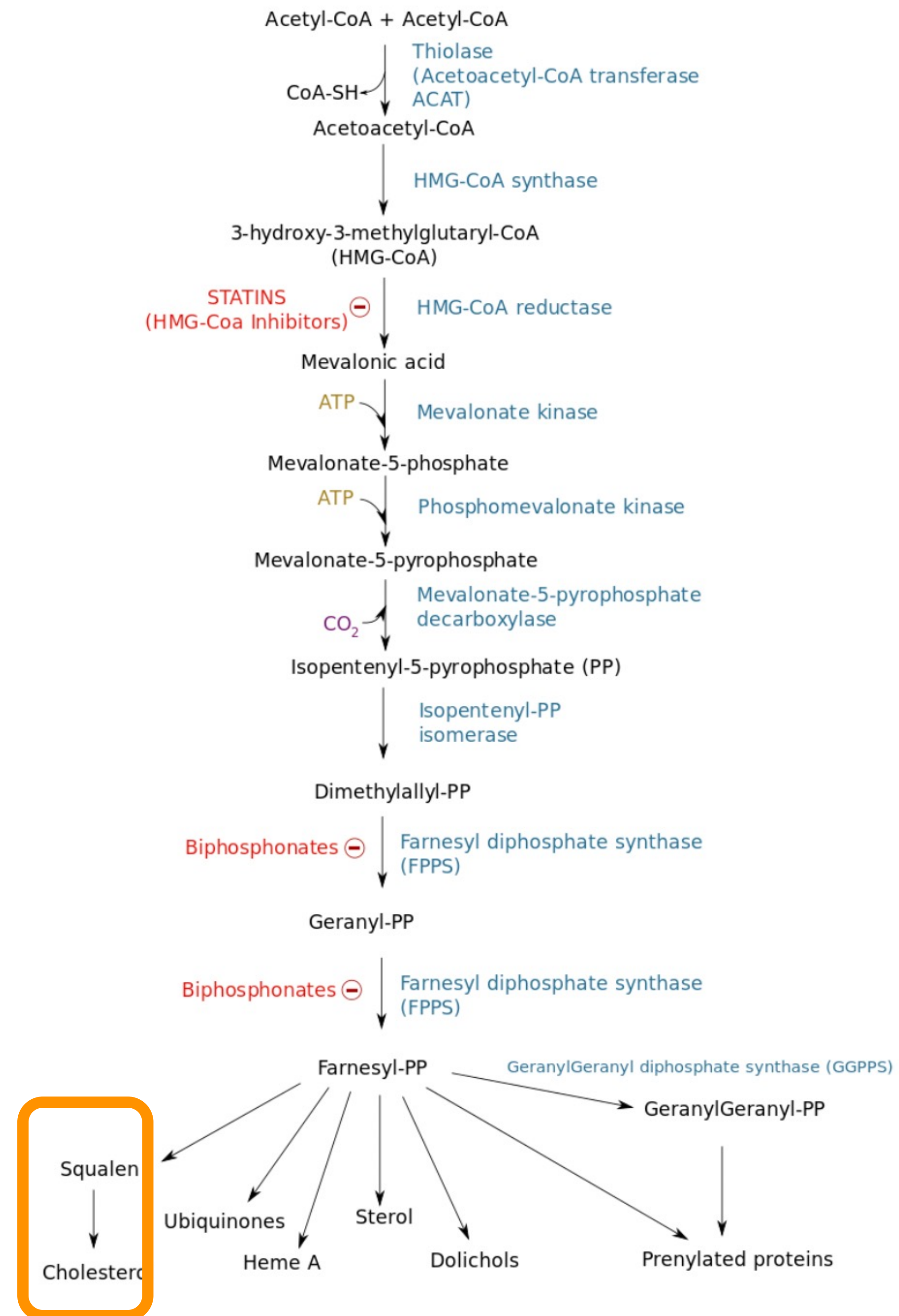




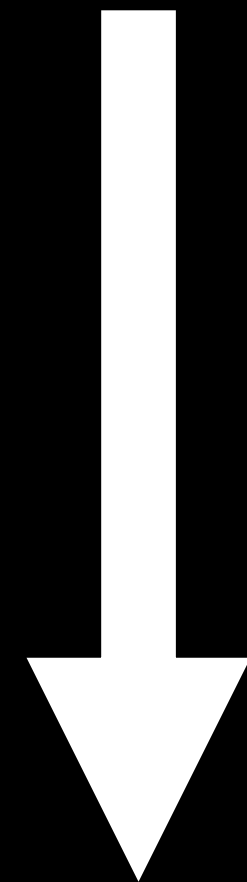
Squalene



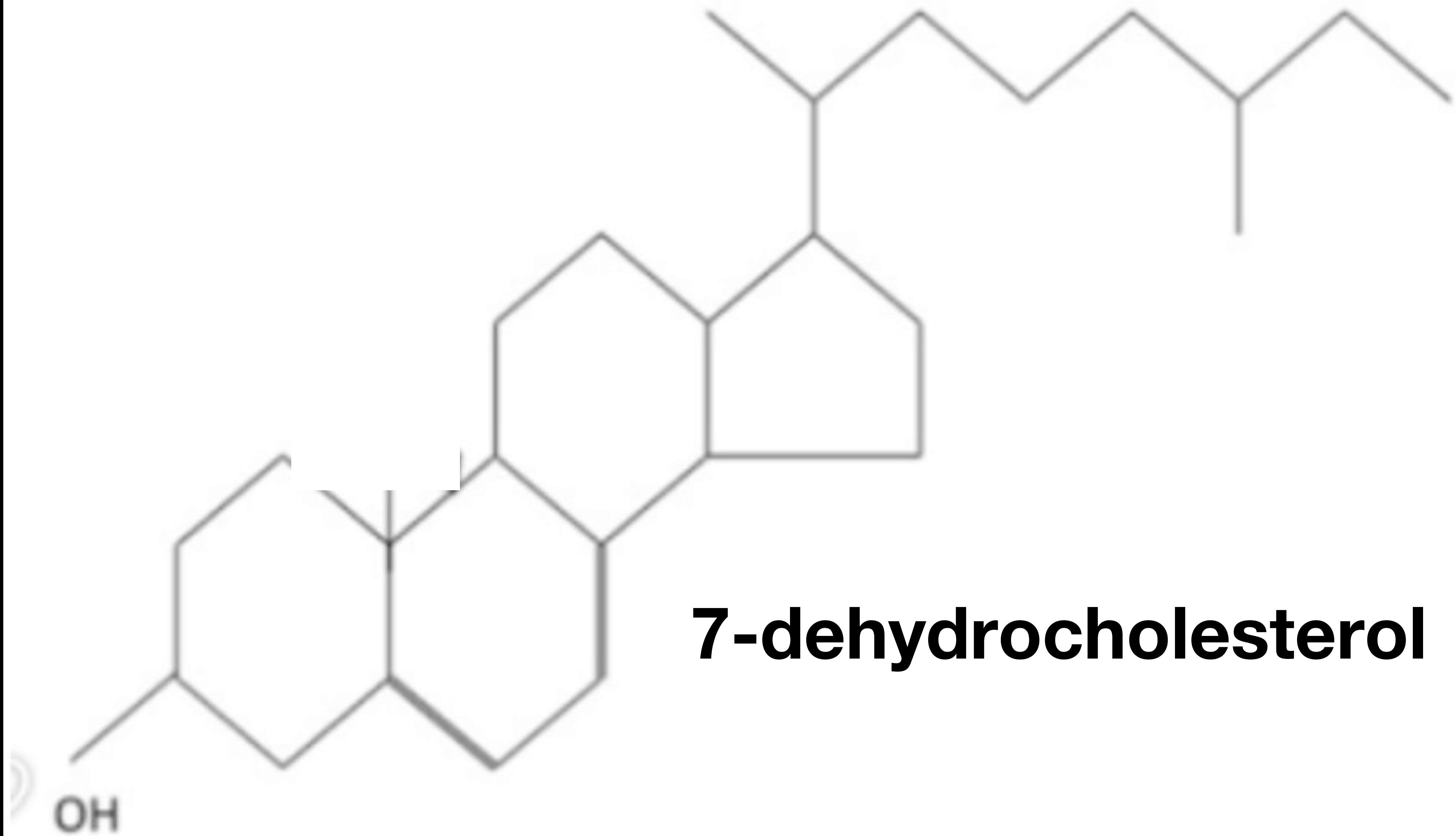




Squalene

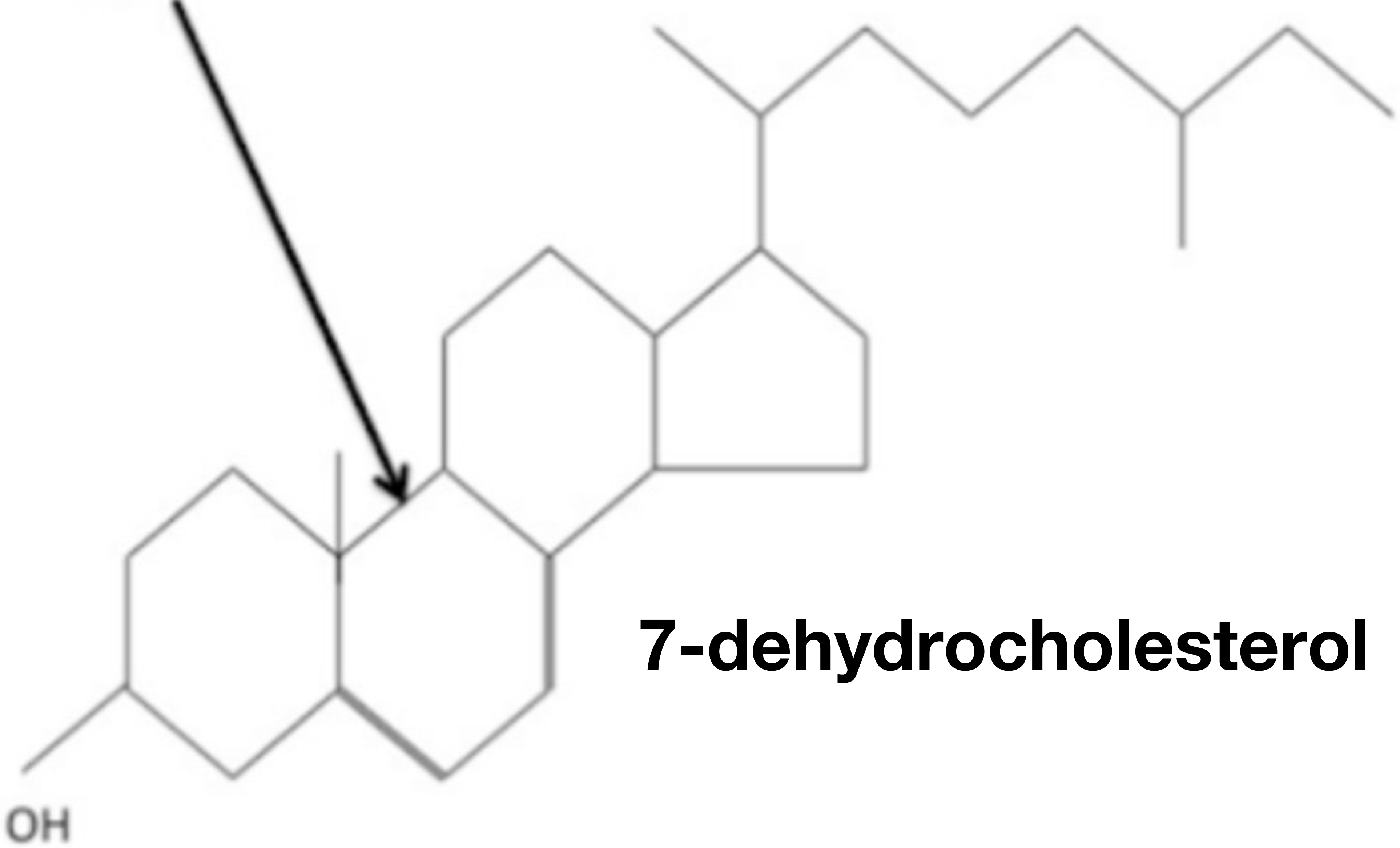


7-dehydrocholesterol

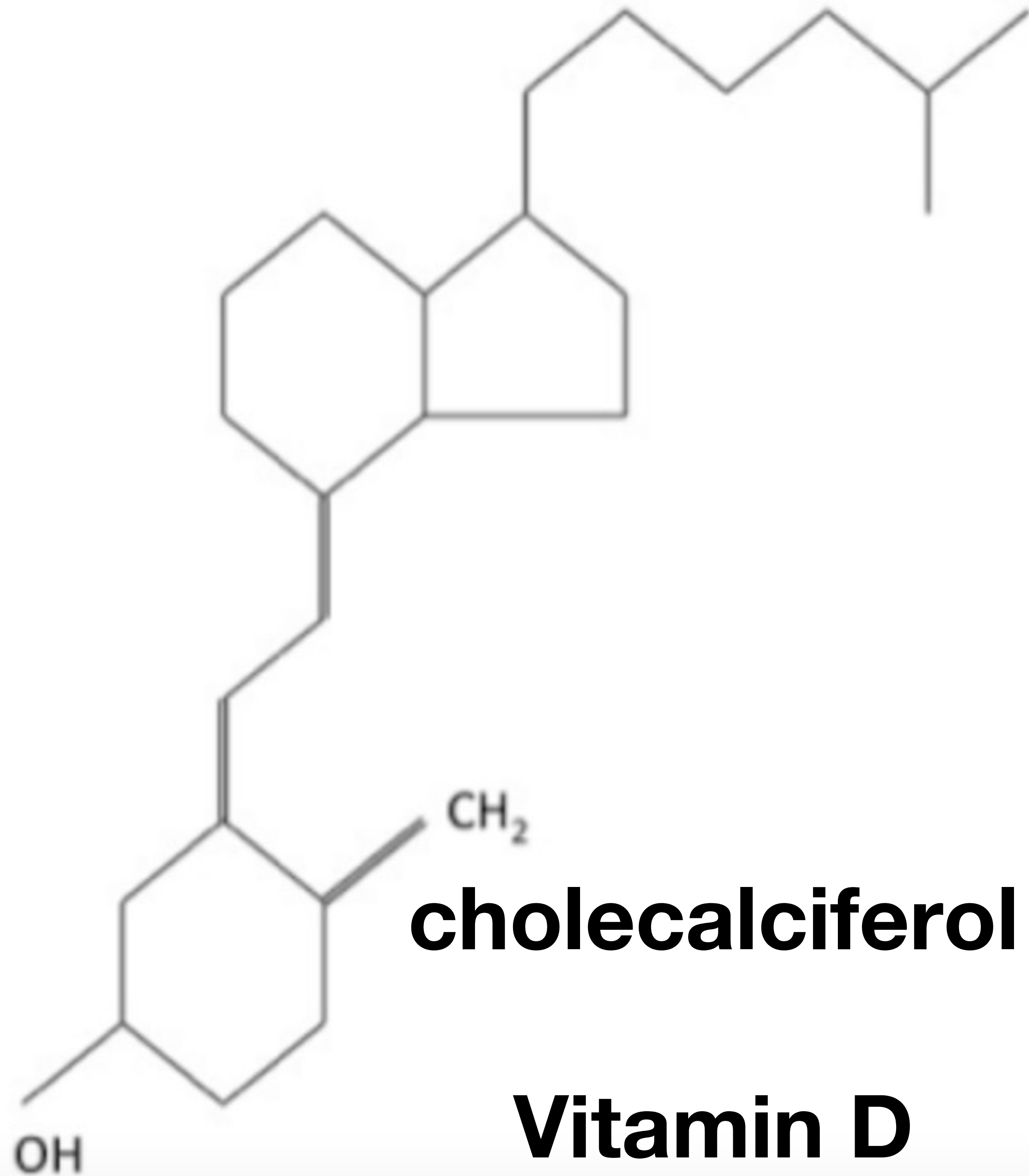


7-dehydrocholesterol

Sun



7-dehydrocholesterol



cholecalciferol

Vitamin D

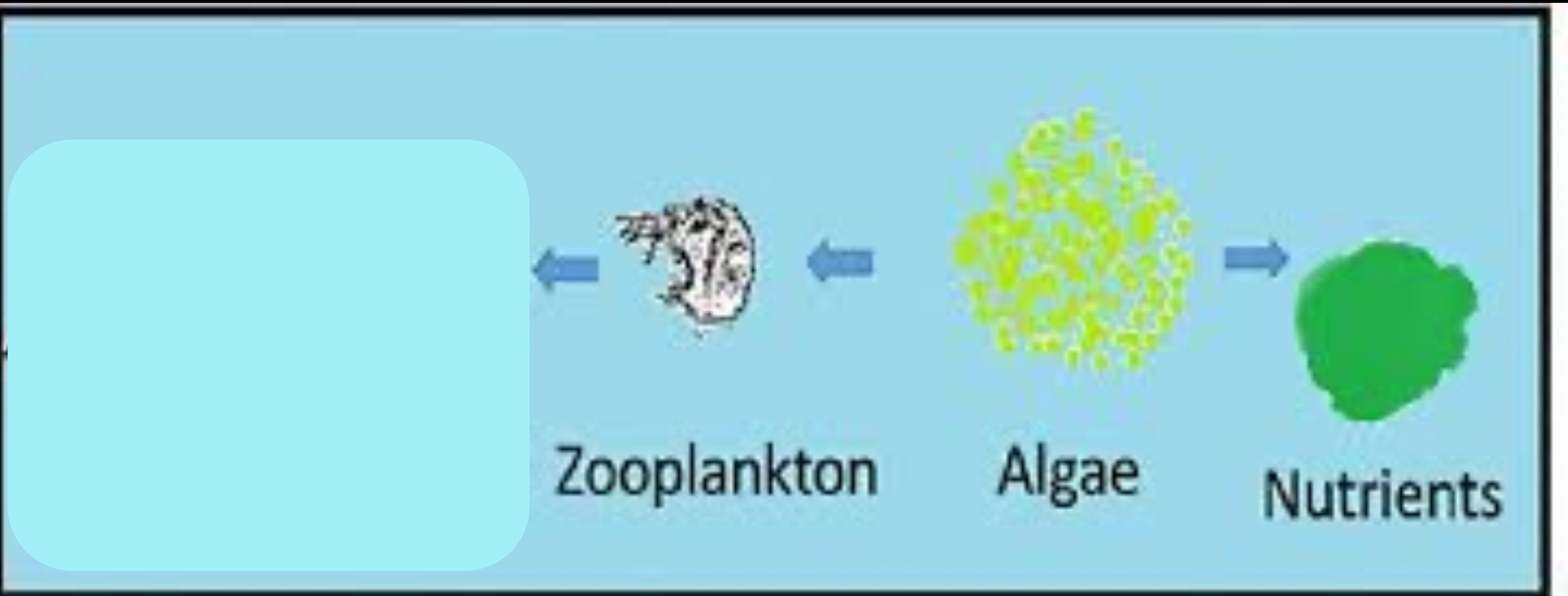
Plankton

A source of
Vitamin D

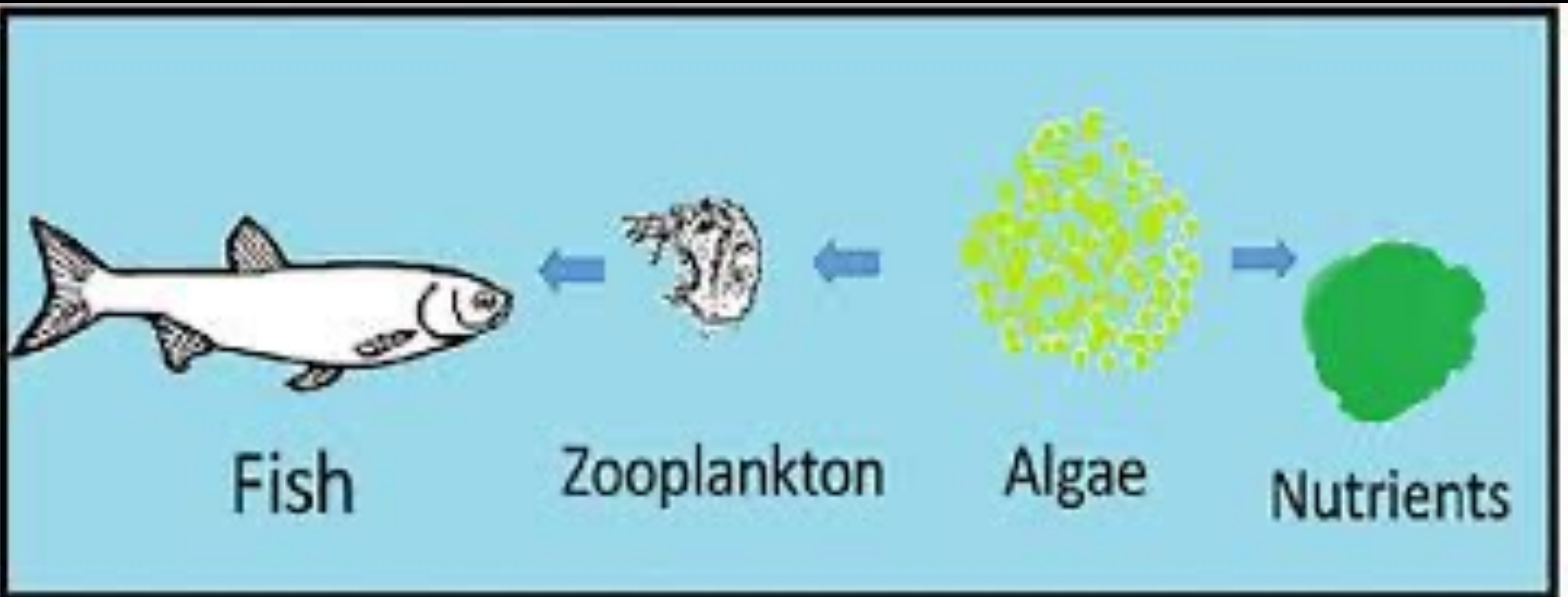
Plankton

no use for Vitamin D

Plankton – food chain



Plankton – food chain



Vitamin D

fish

**cannot produce
vitamin D**

they consume it





1.5 billion years ago

Evolution stood still

**bacteria and viruses
prevented progress**

500 million years ago

**the evolution of
defensive immunity**

**the mechanism to kill
bacteria and viruses**

Immunity

**the great step of evolution
enabled the
Cambrian Explosion
of animal life**

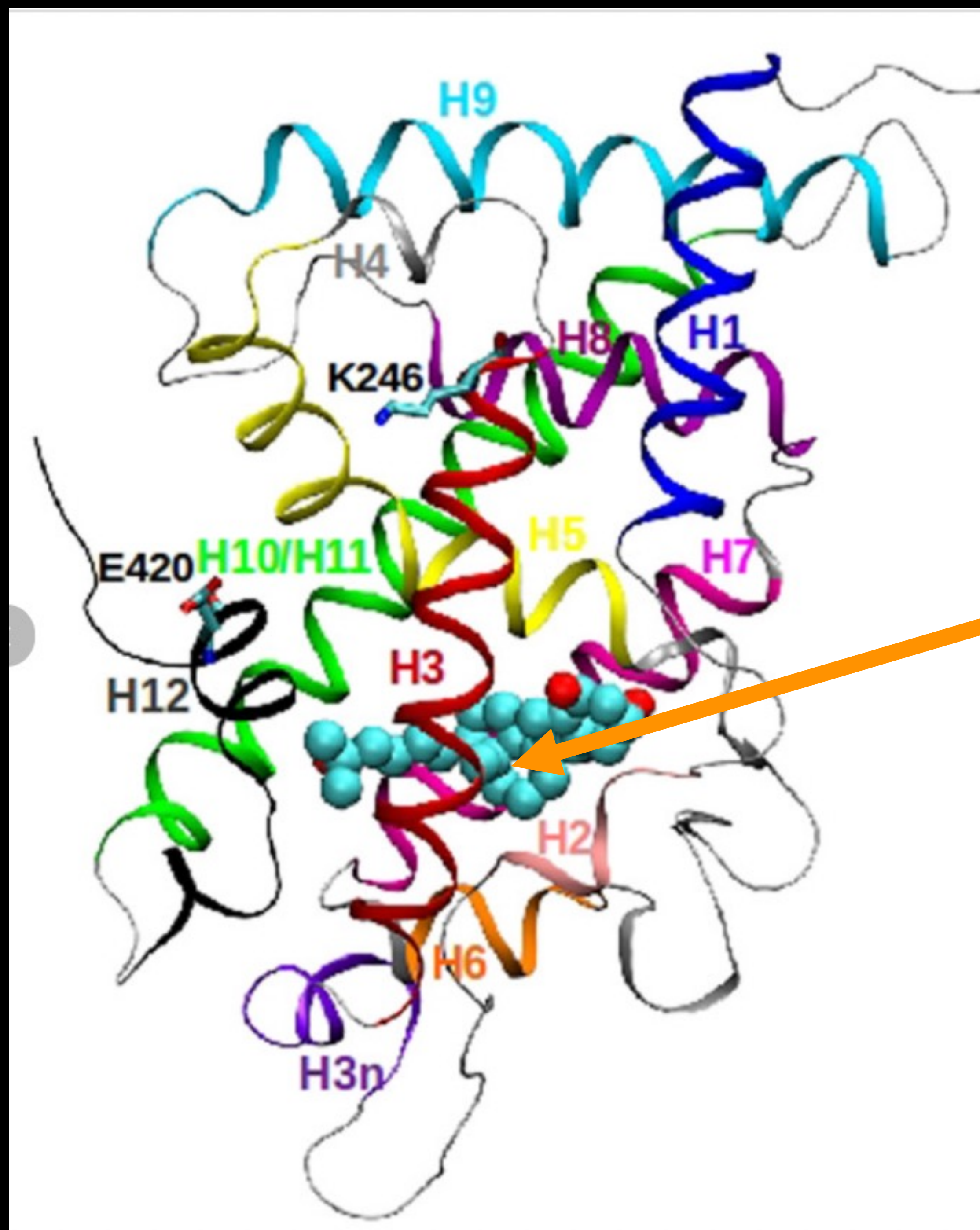


VDR

Vitamin D Receptor

unlocked by vitamin D

VDR



Vitamin D

Vitamin D

formed only by
UV
acting on 7-DHC

Vitamin D

**Solar UV
acts on 7-DHC in
plankton**

Vitamin D

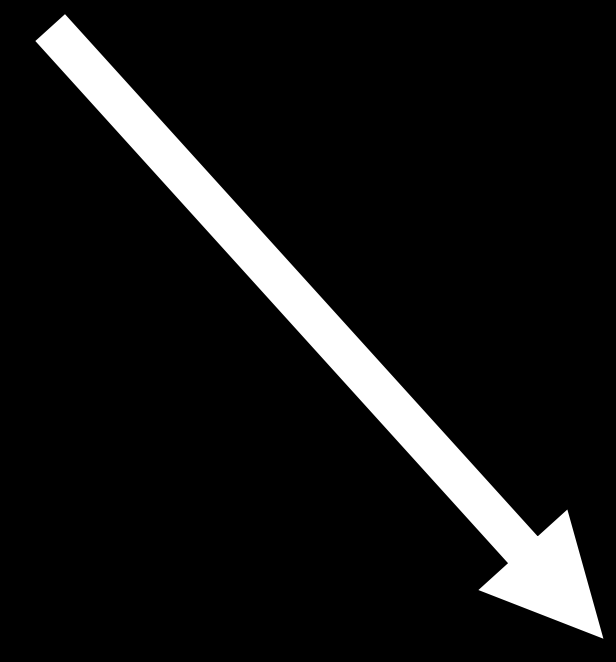
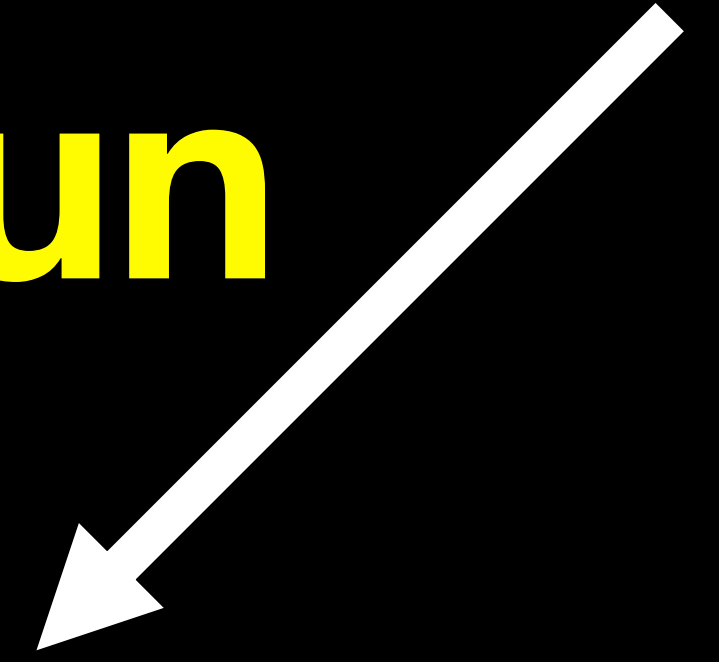
UV

acts on 7-DHC

synthesised in our skin

7-DHC

Sun



Vitamin D

Cholesterol

Food



Vitamin D
cholecalciferol

Liver

25(OH)D
Calcifediol

Blood

1,25(OH)D
Calcitriol

VDR

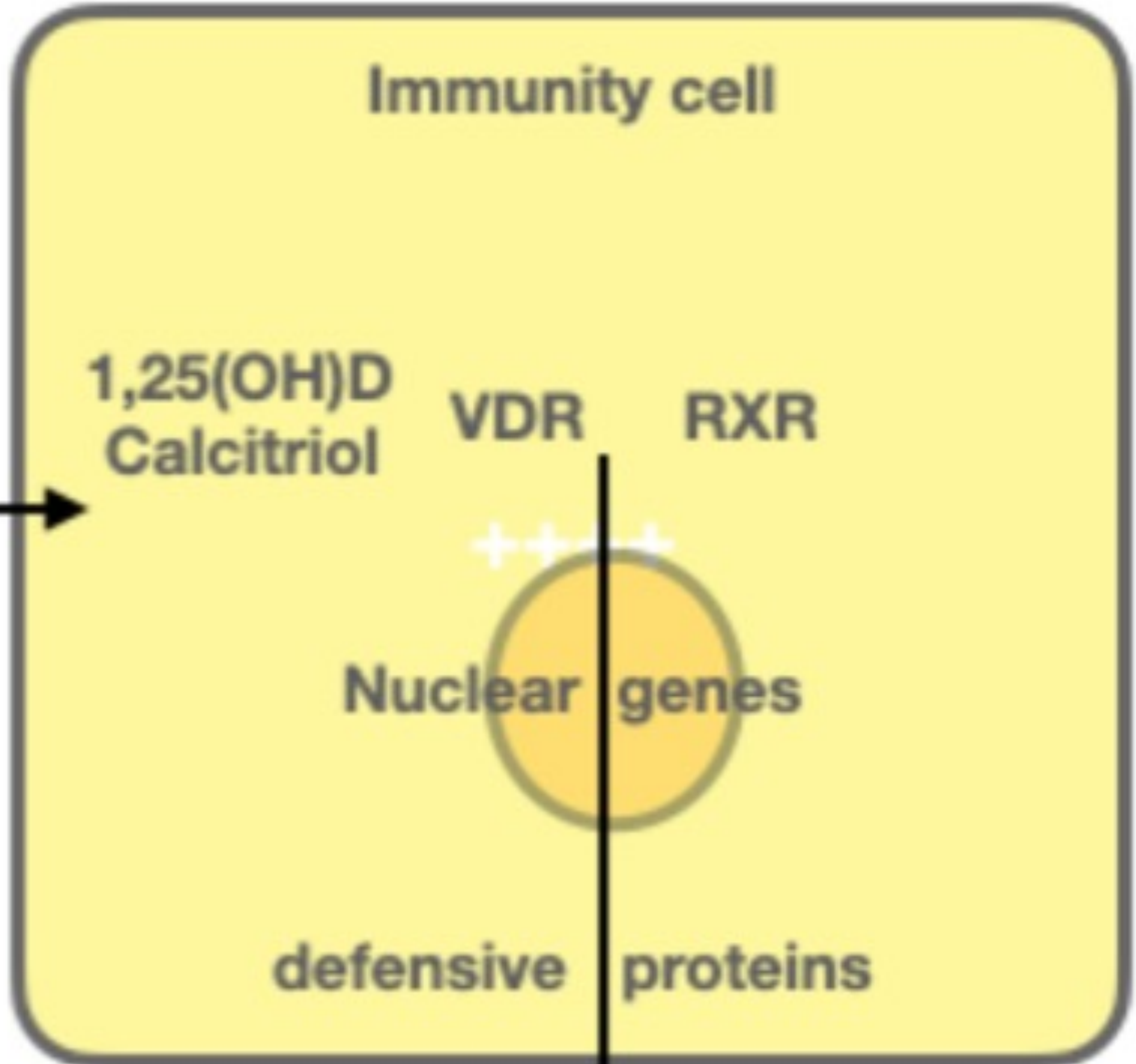
RXR

Nuclear genes

defensive proteins

Tissue fluid

Skin

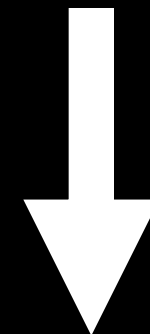


A molecule of Vitamin D

can be used only once,

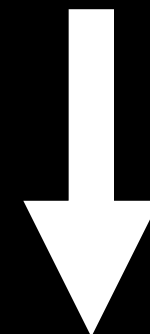
and then it is inactivated

Vitamin D from skin or diet



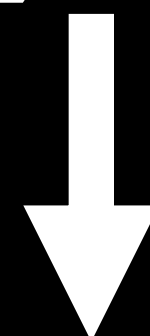
liver

25(OH)D calcifediol



immunity cells

1,25(OH)₂D calitriol



+ VDR

24,25(OH)₂D

Vitamin D

UV

acting on our skin

not when we are my age

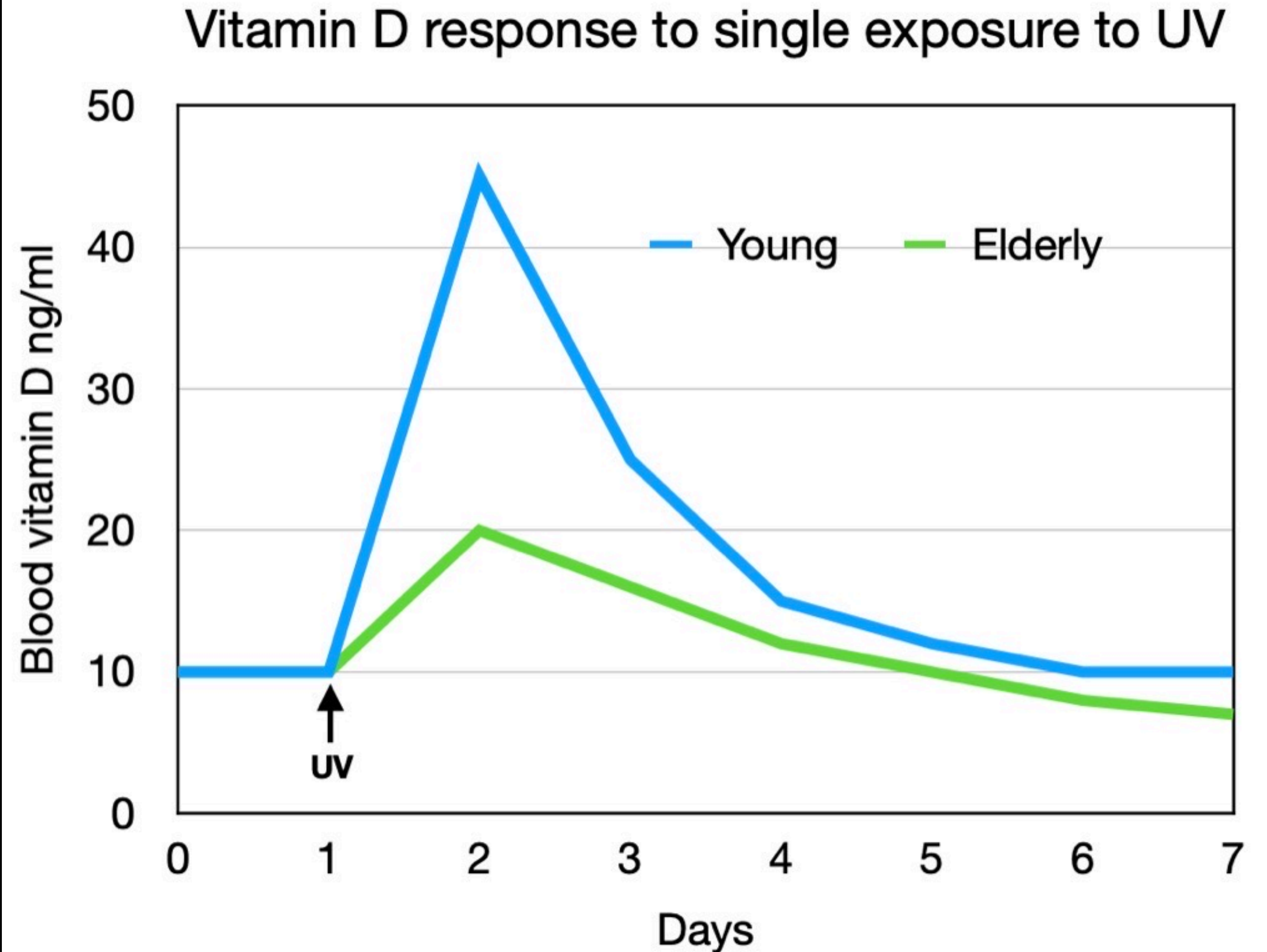
Vitamin D

ageing skin
dry

reduced synthesis of 7-DHC

Vitamin D

in the
elderly



Vitamin D

**all elderly people are
deficient
unless
they take a supplement**

Vitamin D

**Where do the supplements
come from?**



Vitamin D

Solar UV
acting on sheep
oil from wool
is the source of
supplementary vitamin D

Who died in large numbers from Covid-19 in the UK?

Elderly
Obese

Black African & South Asian ethnic

**All these groups were severely
Vitamin D deficient**

**Elderly
Obese**

Black African & South Asian ethnic

**Why were they not protected by
correcting Vitamin D deficiency?**

**Elderly
Obese**

Black African & South Asian ethnic

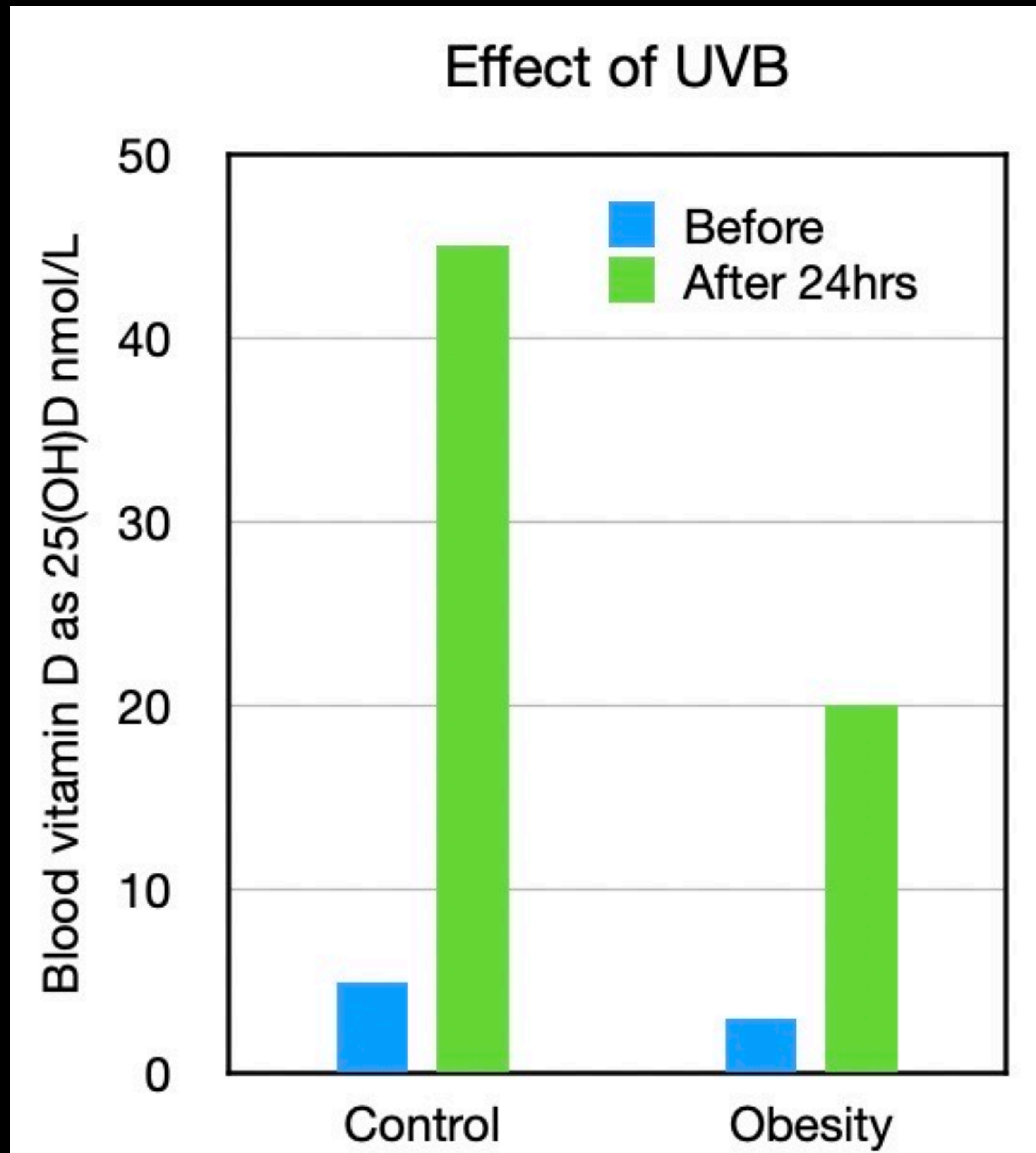
vitamin D deficiency

in

the obese

Vitamin D as 25(OH)D

in the
obese



vitamin D deficiency

**in
the obese**

higher dose of supplement required

vitamin D deficiency

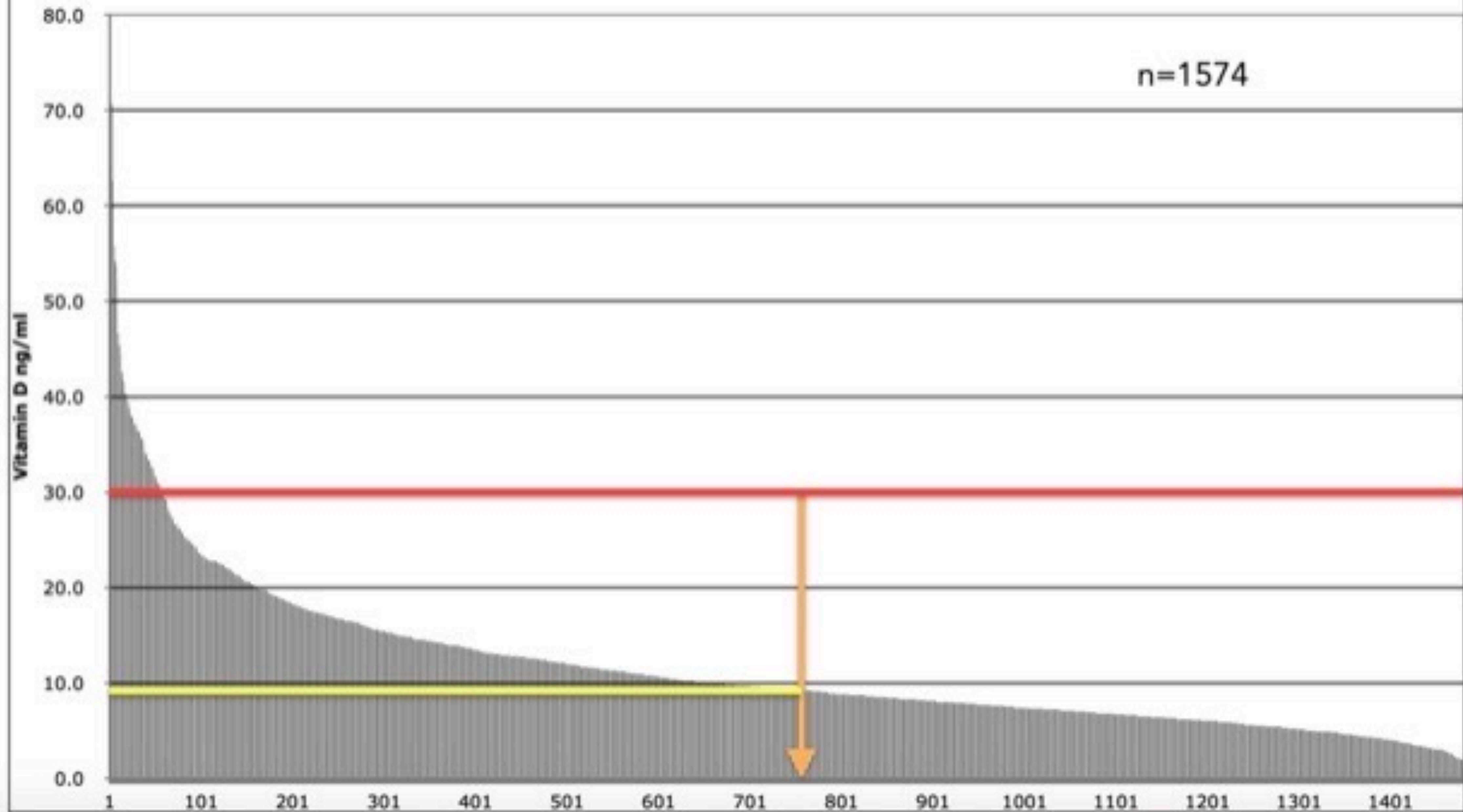
in

**South Asian & Black African
ethnic groups**

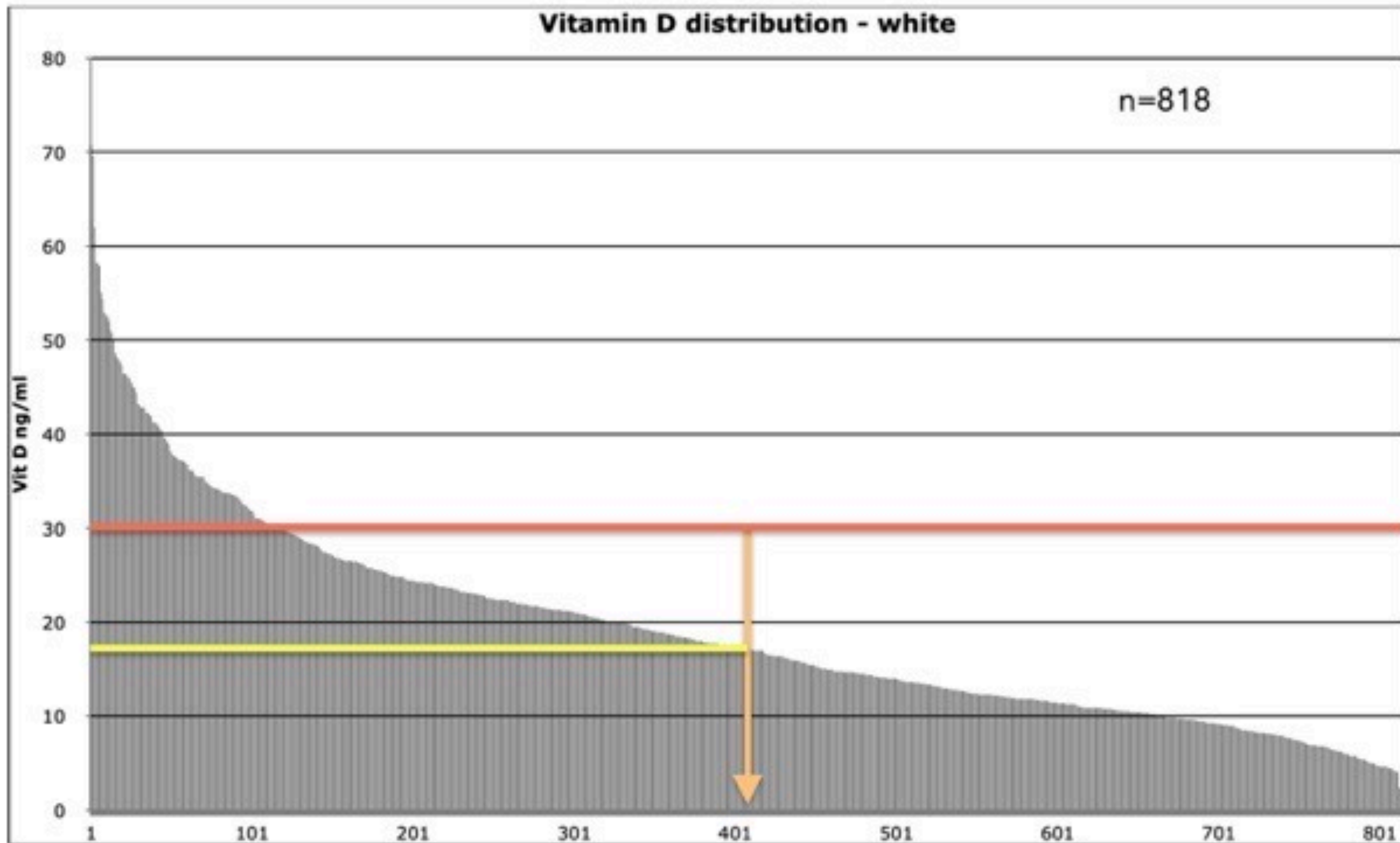


Vitamin D distribution - South Asian

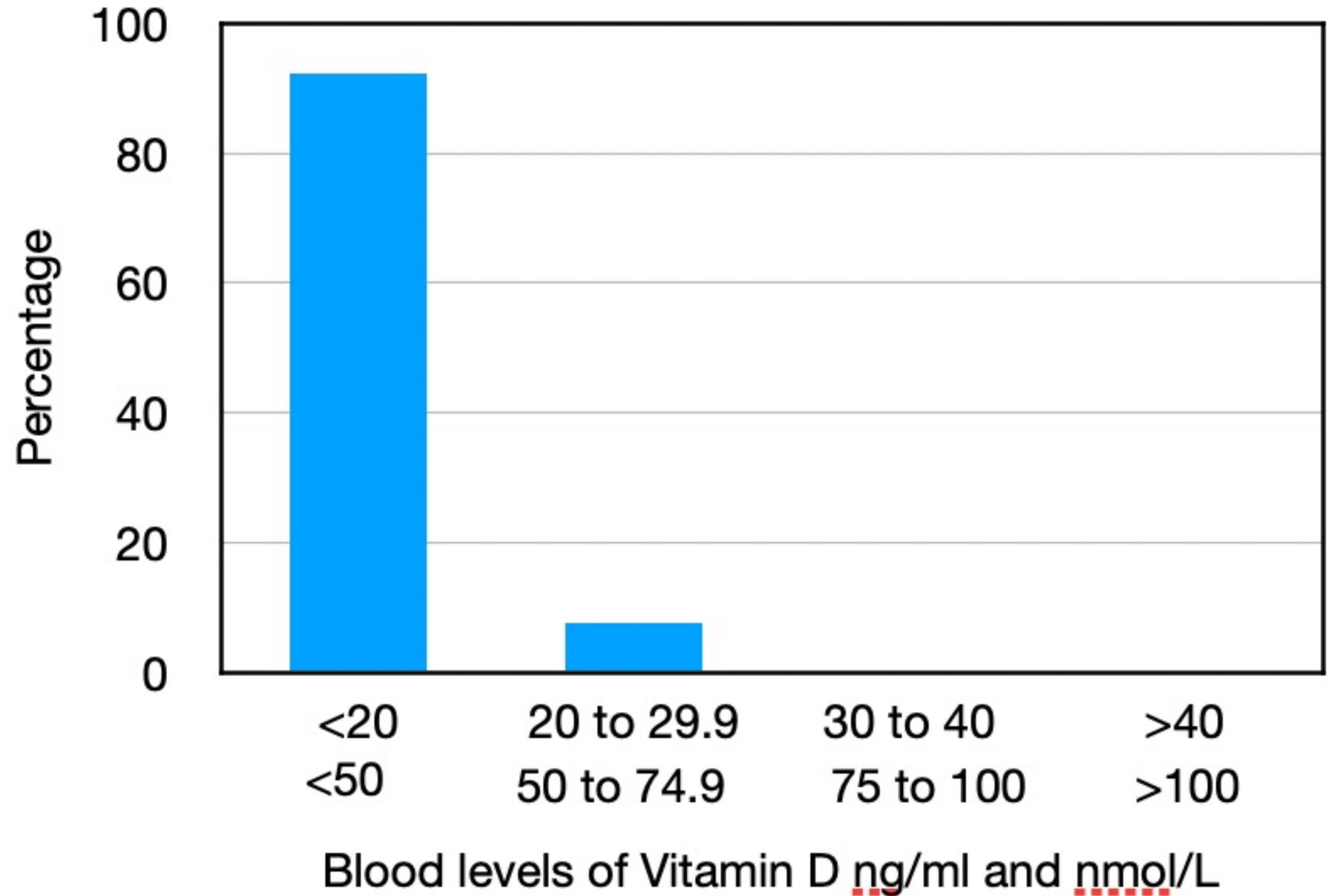
n=1574



Vitamin D distribution - white



Israel: Covid-19 Critical



**Vitamin D
deficiency
is very
serious**

Vitamin D

ideal blood level

is determined by clinical experience

SACN

**Standing Advisory Committee
on Nutrition**

Vitamin D
ideal blood range
as stated by SACN

not less than

20 ng/ml

50 nmol/L

Vitamin D

bone health

immunity

Vitamin D

ideal blood level

is determined by clinical experience

Vitamin D
ideal blood range
from clinical experience

40 – 60 ng/ml

100 – 150 nmol/L

Vitamin D
ideal blood range
from clinical experience

**How do we achieve
this?**

Vitamin D

80% from the sun

Not enough vitamin D

in winter

indoor life

if elderly

if obese

if extensively clothed

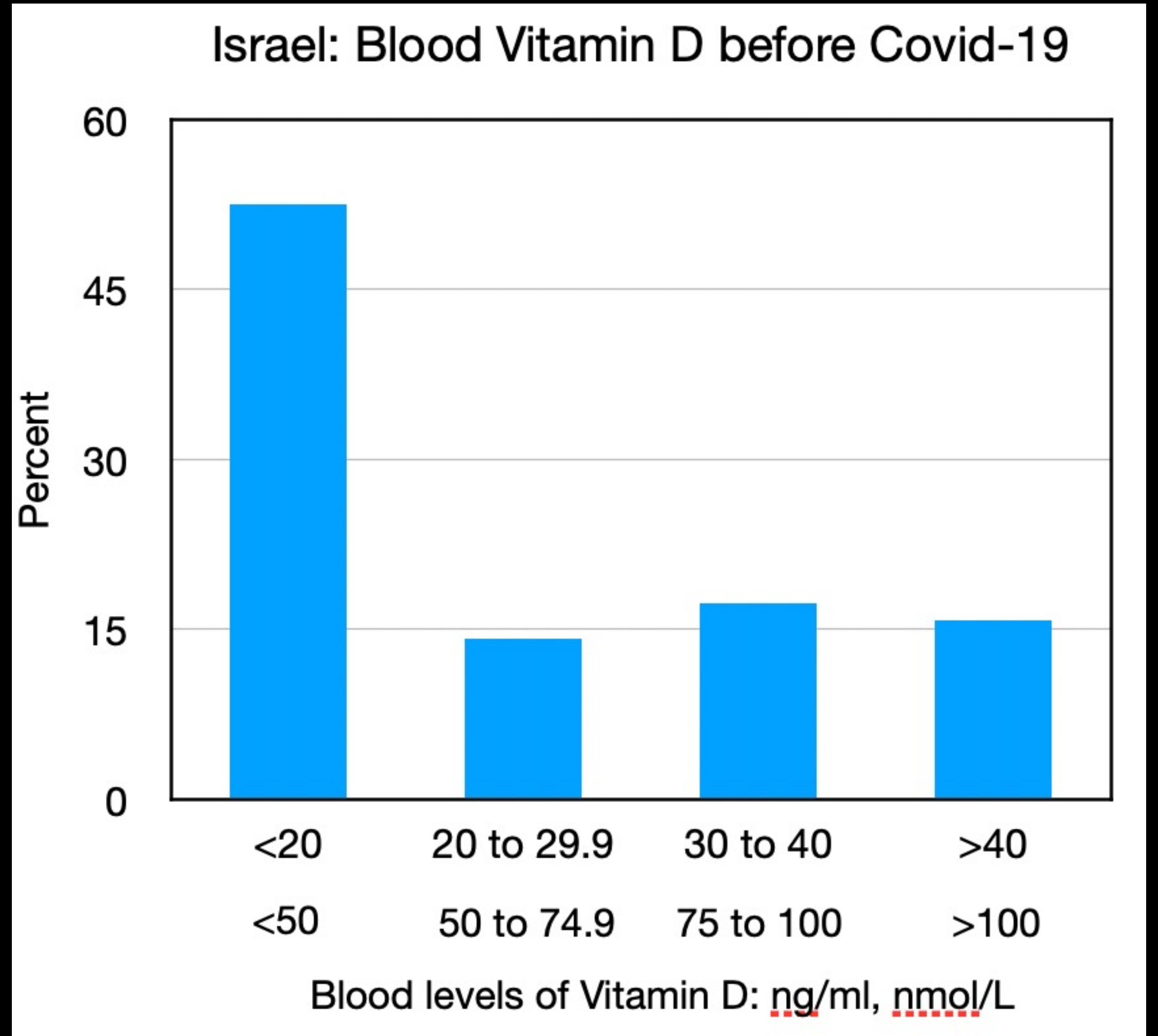
dark skin distant from equator

vitamin D deficiency

is

very common

Vitamin D deficiency in Israel











Vitamin D from food

**oily fish
meat**

mushrooms

Vitamin D

one unit

20 billionths of a gram

the daily requirement of a
10g mouse

**I need
one unit
of
Vitamin D
every day**



Vitamin D

**a 60kg adult human would
require**

6,000 units per day

all ages and ethnicity

Vitamin D

a 60kg adult human

or

40,000 units each week

all ages and ethnicity

Vitamin D

20,000 unit capsules

20,000IU

Vitamin D3

(Cholecalciferol)

VITAMINS • SUPPLEMENTS • HEALTH



**DAIRY
FREE**



**GLUTEN
FREE**



28 Capsules

or oral administration

Vitamin D

a 120kg human would
require

12,000 units each day

Vitamin D

6,000 units each day

150 micrograms

Vitamin D

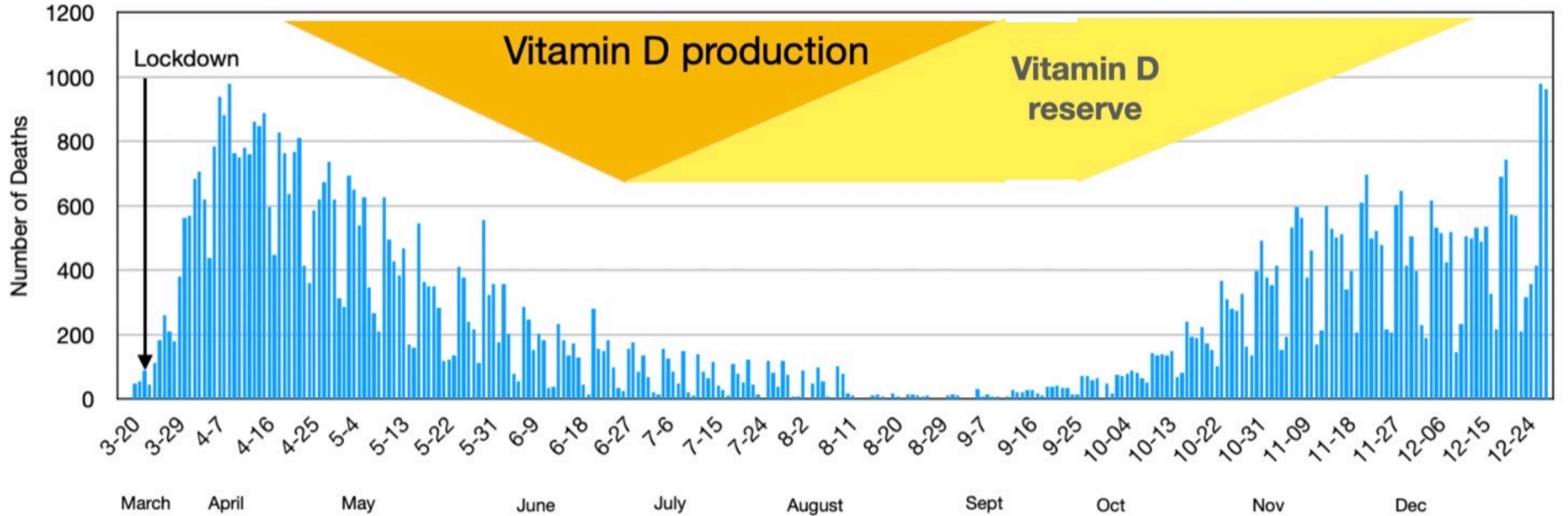
6,000 units each day

**avoid micrograms
as great confusion**

Vitamin D

**its effect on the
2020 Covid-19
pandemic
in the UK**

UK Deaths each day 2020



**Mail
on-line**

**June
22nd
2023**

Since the Covid-19 epidemic started multiple studies have repeatedly shown a link to Vitamin D deficiency yet when Matt Hancock was asked about it he **WRONGLY said a British study had found the opposite. Is he ignorant or incompetent?**

- **Mr Hancock claimed Government experts ran unsuccessful trials of vitamin D**
- **But officials since admitted this wasn't true and claim health secretary misspoke**
- **MPs and experts today fumed Mr Hancock 'needed to get his facts straight'**
- **Experts have for months been calling for ministers to look into vitamin's effect**

- **Mr Hancock claimed Government experts ran unsuccessful trials of vitamin D**
- **But officials since admitted this wasn't true and claim health secretary misspoke**
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Disinformation

The Covid-19 Pandemic

Is it over?

The Covid-19 Pandemic

UK 2023

between July 20 and August 4

15 days

9779 new cases

285 deaths

The Covid-19 Pandemic

UK 2023

between July 20 and August 4

15 days

600 new cases per day

30 deaths per day

The Covid-19 Pandemic

UK 2023

Covid-19: 200 deaths per week

Excess: 1,000 deaths per week

The Second Pandemic

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[Department for
Science, Innovation
& Technology](#)

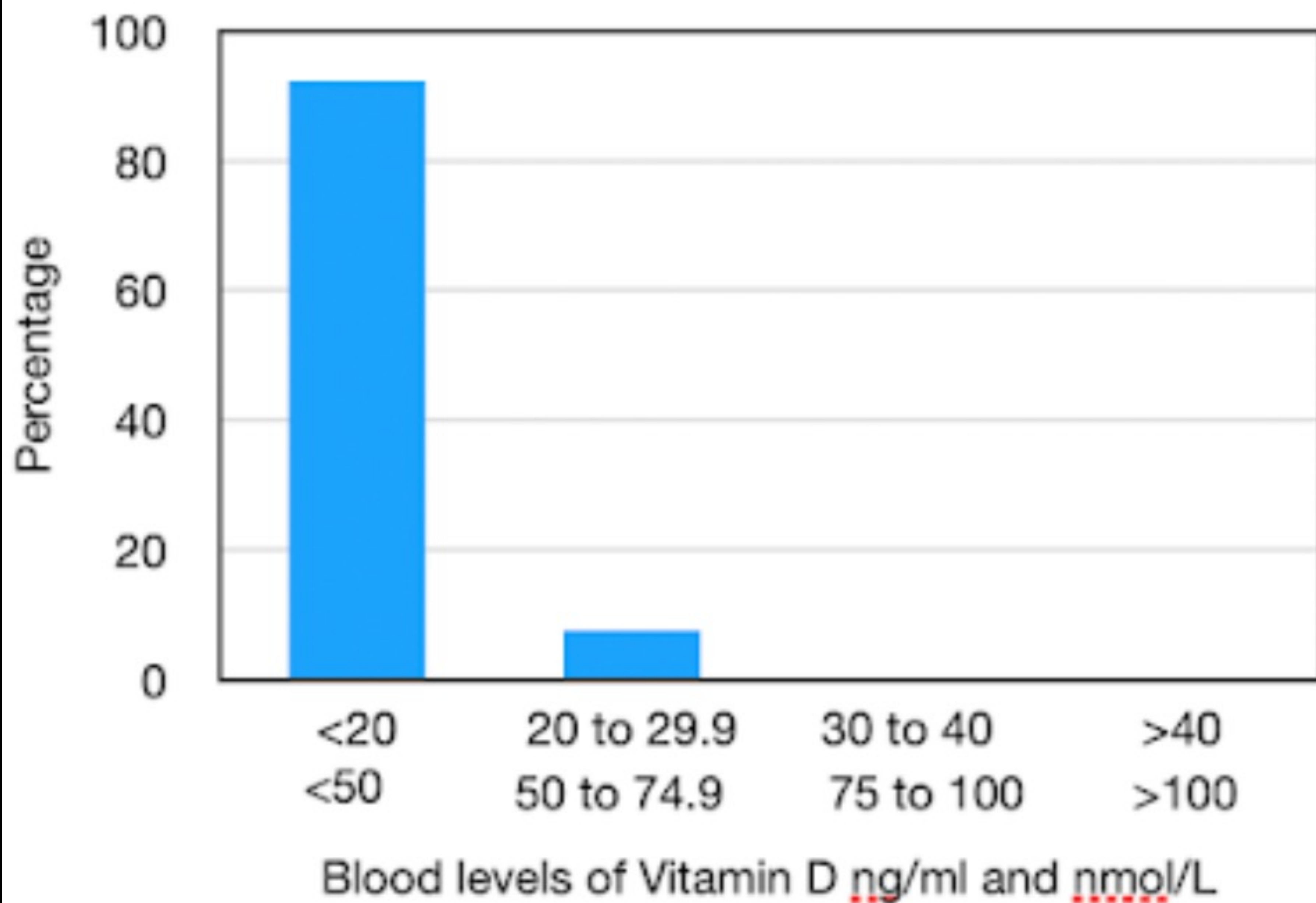
CDU

Notice

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Israel: Covid-19 Critical



Thank you for your attention

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