

SISTEMA

componente

componente

subsistema

componente

Entrada

Información
Energía
Recursos

Salida

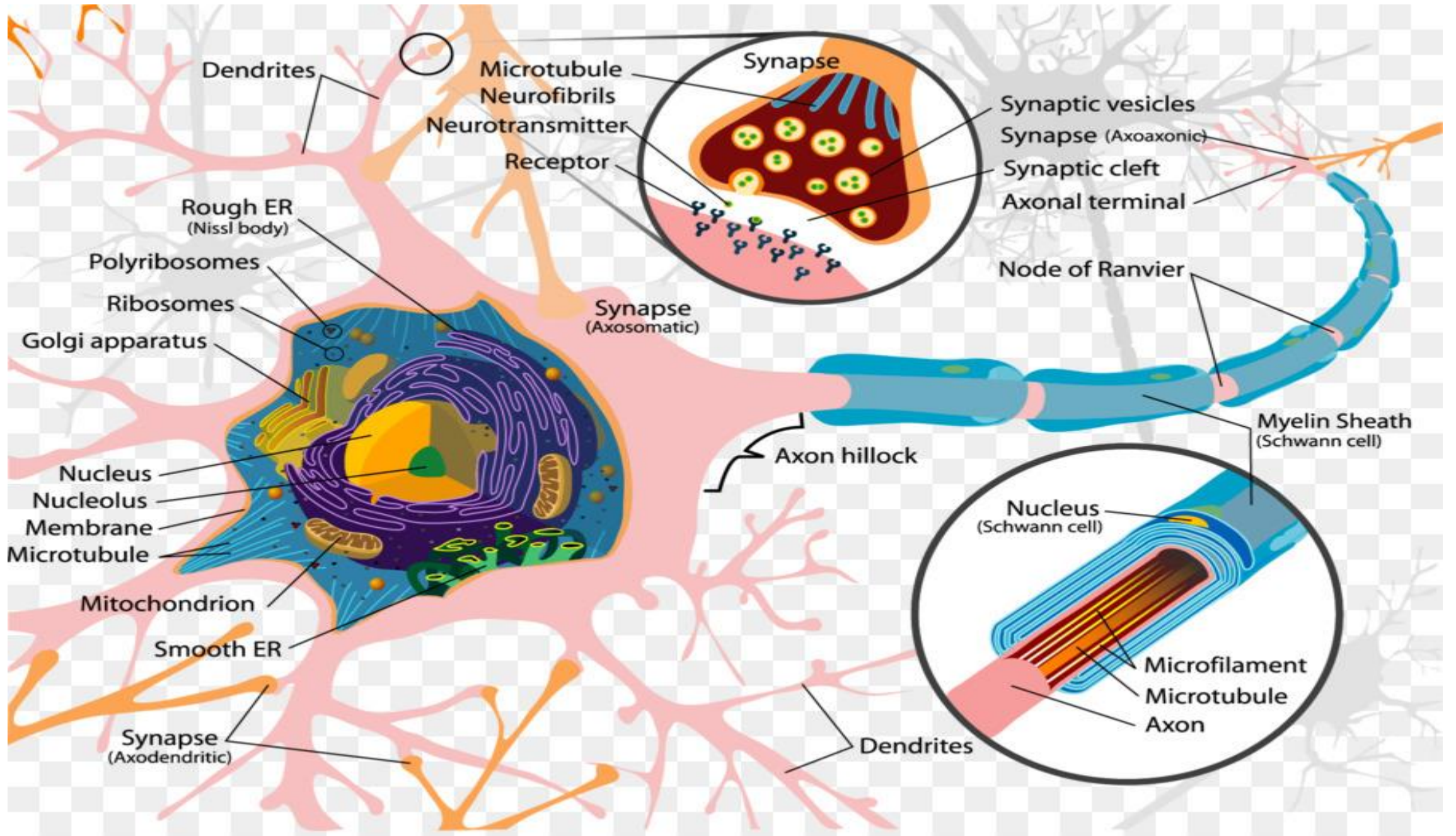
Información
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ambiente externo
(supersistema)



TEORÍA DE DARWIN

O te adaptas, o mueres...



Sistema	Montón
Partes interconectadas que funcionan como un todo	Serie de partes
Cambia si se quitan o añaden piezas.	Las propiedades esenciales no se alteran al quitar o añadir piezas
Si se divide un sistema en dos, no se consiguen dos sistemas más pequeños, sino un sistema defectuoso que probablemente no funcionará	Cuando se divide, se consiguen dos montones más pequeños
La disposición de las piezas es fundamental	La disposición de las piezas no es importante
Las partes está conectadas y funcionan todas juntas	Las piezas no están conectadas y funcionan por separado
Su comportamiento depende de la estructura global	Su comportamiento (si es que tiene) depende de su tamaño o del nº de piezas
Si se cambia la estructura, se modifica el comportamiento del sistema	Si se cambia la estructura, no se modifica el comportamiento del montón



GLOBAL WARMING

CAUSES

Greenhouse Effect
Without it the earth would be -20°C
One third of short wave energy reflected
heat absorbed earth radiates long wave (radiation)

By greenhouse gases
HEAT Trapped?
HUMAN ACTIVITY
Water vapour
 CO_2
Methane
Nitrous Oxide

GAIA THEORY

Life balances greenhouse gases
WHO?
30% INCREASE IN CO_2 SINCE INDUSTRIAL REVOLUTION!
EQUIVALENT TO THE 160 BILLION TONS OF CO_2 THAT ENDS AN ICE AGE
BUT THAT TOOK THOUSANDS OF YEARS!
NEXT ICE AGE NOT DUE FOR 5000 YEARS

EVIDENCE
ICE CORES
 CO_2 trapped Antarctica & Greenland
 CO_2 & Temperature co-varied for 400,000 years
 3°C change in decades

CO_2 recording starts 1958

WEATHER CHANGE
1997-1998 ARE THE HOTTEST YEARS ON RECORD

IPCC REPORT

1997-98 EL Niño strongest ever
40% storm increase
20cm increase in sea level
20th Century 0.6° increase
2000/2001 in the UK had 2 floods, these previously occurred in 50 year cycles
10 FOLD INCREASE IN PROPERTY LOSS IN 30 YEARS
 $5.8^{\circ}\text{C}+$ BY 21st CENTURY
Tree Migration
90cm SEA LEVEL INCREASE

SOLUTIONS

IPCC STARTED IN 1988
CLIMATE CHANGE COSTS \$10 BILLION PER ANNUM PER CENTION BILLION
60-80% CUT IN EMISSIONS NEEDED
ICE CORE ISLAND
UNAVAILABLE EARLY (5 YEARS) TO CHECK
POTENTIALLY MORE RISKY THAN NOWAY
IMMEDIATE RESULTS OPPORTUNITIES
NEW TECHNOLOGY
WIND SOLAR EFFICIENCY NUCLEAR
10X CO_2 PER CAPITA OF CHINA 180 COUNTRIES
PERMA FROST & GAS HYDRATES
DISEASE MALARIA
George W. Bush
STILL HASN'T JOINED

United States
Europe
Asia

THE RICH NATIONS SINCE 1700's

WHO?
SHARE HOLDERS
NORTH HEMISPHERE IS COOLING?
WHO?
30MM MAIN ENEMIES
BIG OIL
EXAGGERATION OF FLOOD DROUGHT

FRESH WATER AVAILABILITY
Rising Population

