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Microplastics

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Microplastics

What Are They Doing to Our Bodies?

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Disclosures

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- Peter Lin, MD, CCFP (Speaker): Speaker for Abbott, Amgen, AstraZeneca, Bayer, Boehringer Ingelheim, Eli Lilly, Medtronic, Merck, Novo Nordisk, Sanofi

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Off-Label/Investigational Discussion:

- In accordance with Pri-Med Institute policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.

Learning Objectives:

Explain the effects of microplastics on patients' bodies

List ways that patients can reduce the amount of microplastics they consume

Describe BPA and how it is an endocrine disruptor and what that means





Microplastic Pieces



Microplastic Pieces

Chemicals to make plastics
eg. BPA



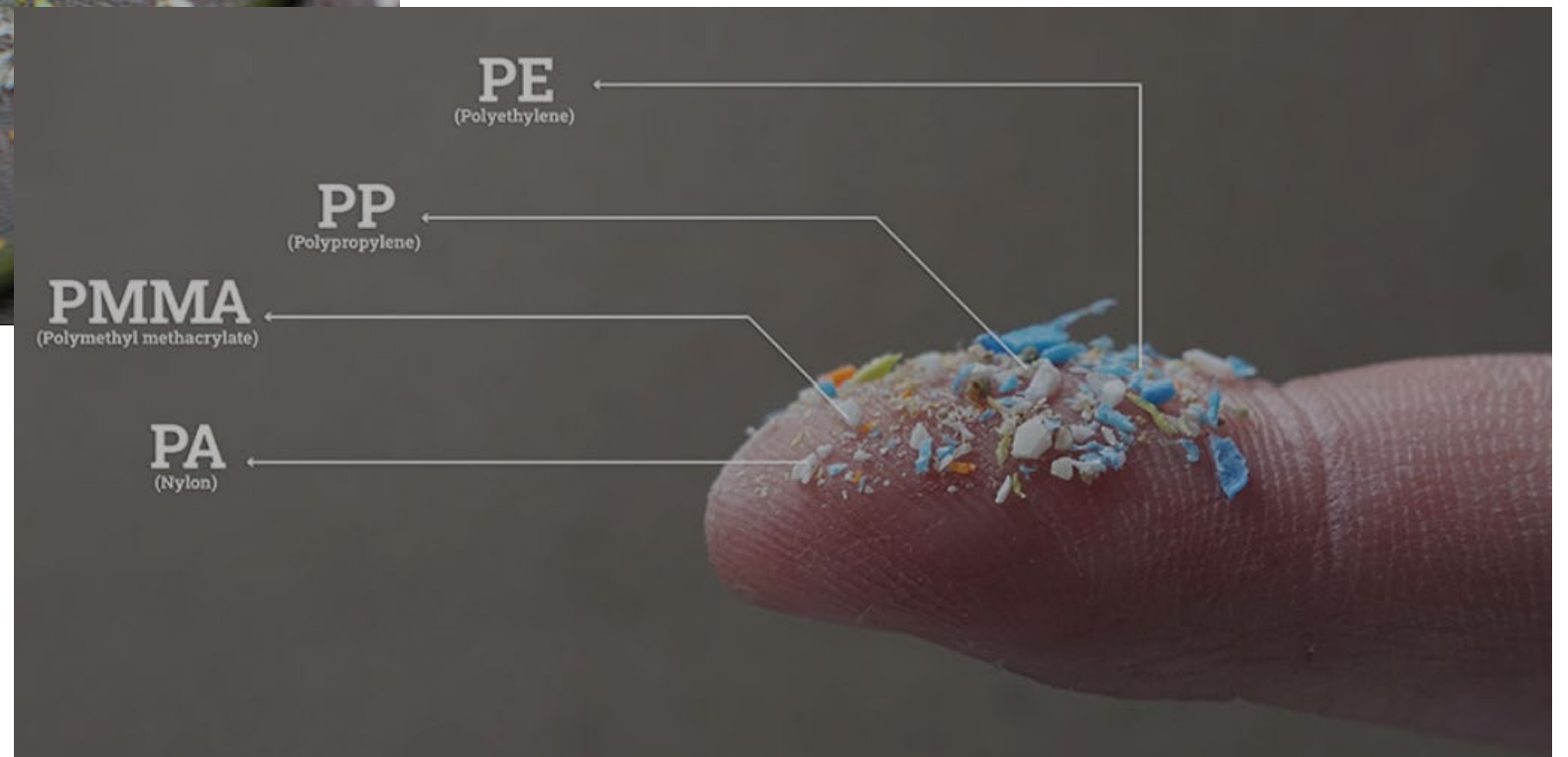


Microplastic Pieces

Chemicals to make plastics
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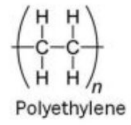
Chemicals attach to plastics



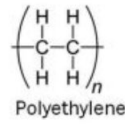


Types of Plastics

Types of Plastics

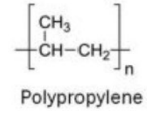
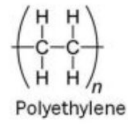


Types of Plastics



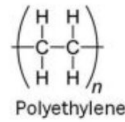
PE – **P**oly**E**thylene

Types of Plastics

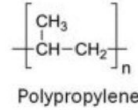


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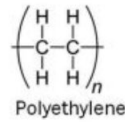


PE – **P**oly**E**thylene

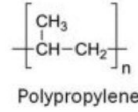


PP – **P**oly**P**ropylene

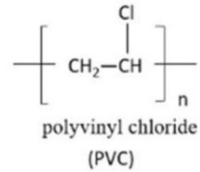
Types of Plastics



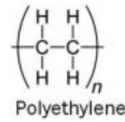
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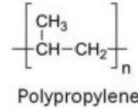
PP – **P**oly**P**ropylene



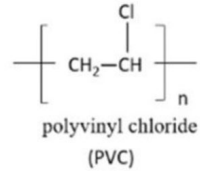
Types of Plastics



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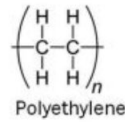


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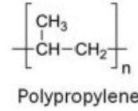


PVC – **P**oly**V**inyl **C**hloride

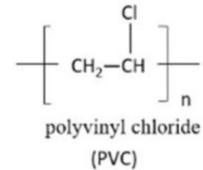
Types of Plastics



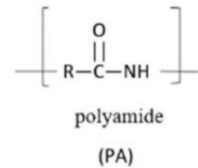
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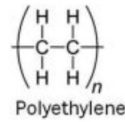
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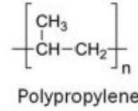
PVC – Poly**V**inyl **C**hloride



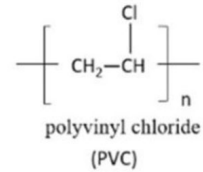
Types of Plastics



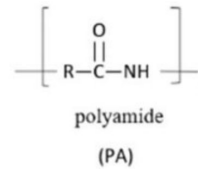
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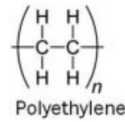


PVC – **P**oly**V**inyl **C**hloride

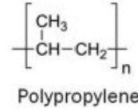


PA – **P**oly**A**mid

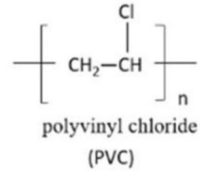
Types of Plastics



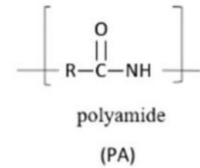
PE – **P**oly**E**thylene



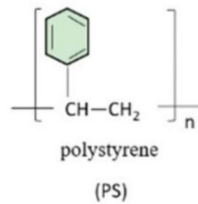
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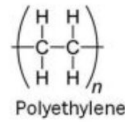
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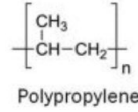
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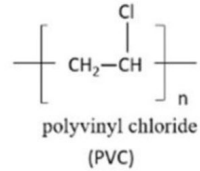
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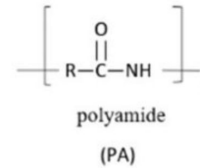
PE – Poly**E**thylene



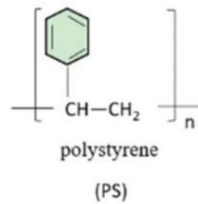
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PVC – Poly**V**inyl **C**hloride

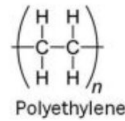


PA – Poly**A**mid

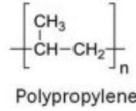


PS – Poly**S**tyrene

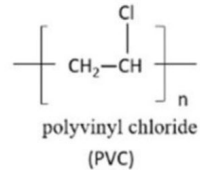
Types of Plastics



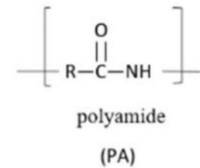
PE – **P**oly**E**thylene



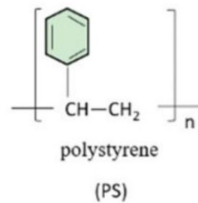
PP – **P**oly**P**ropylene



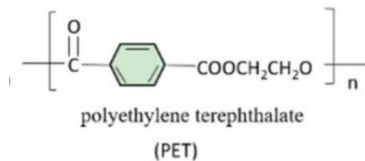
PVC – **P**oly**V**inyl **C**hloride



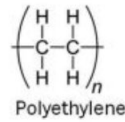
PA – **P**oly**A**mid



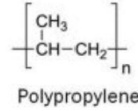
PS – **P**oly**S**tyrene



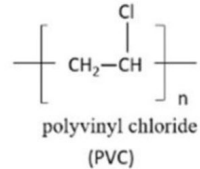
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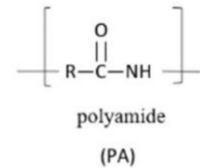
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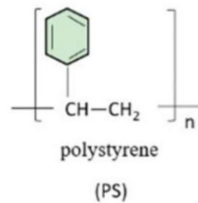
PP – Poly**P**ropylene



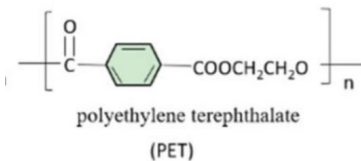
PVC – Poly**V**inyl **C**hloride



PA – Poly**A**mid



PS – Poly**S**tyrene



PET – Poly**E**thylene **T**erephthalate

Where the Ocean's Microplastics Come From



Estimated share of total microplastics
in the world's oceans, by source

<https://www.statista.com/chart/17957/where-the-oceans-microplastics-come-from/>

Source: International Union for Conservation of Nature

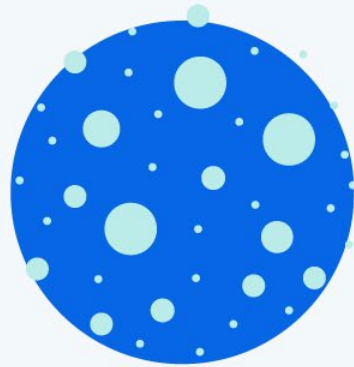


statista 

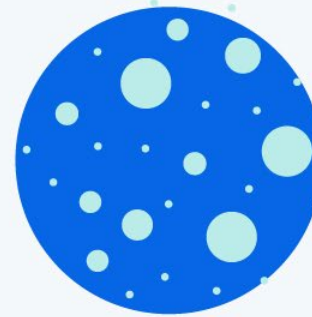
Where the Ocean's Microplastics Come From



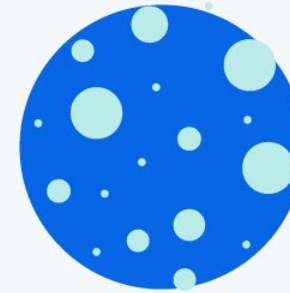
Estimated share of total microplastics
in the world's oceans, by source



Synthetic textiles
35.0%



Car tires
28.0%

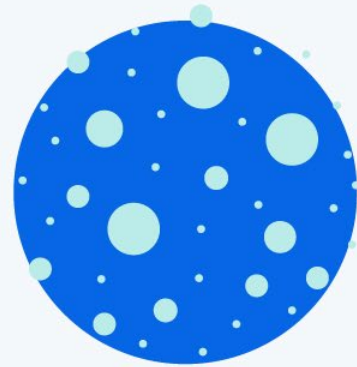


City dust
24.0%

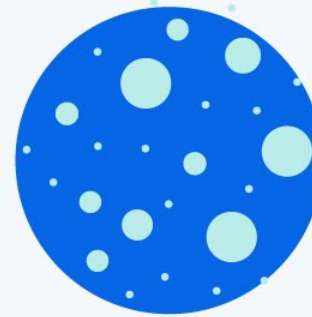
Where the Ocean's Microplastics Come From



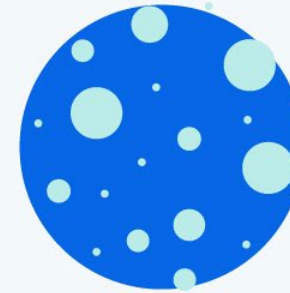
Estimated share of total microplastics
in the world's oceans, by source



Synthetic textiles
35.0%



Car tires
28.0%



City dust
24.0%



Road
markings
7.0%



Marine
coatings
3.7%



Personal
care products
2.0%

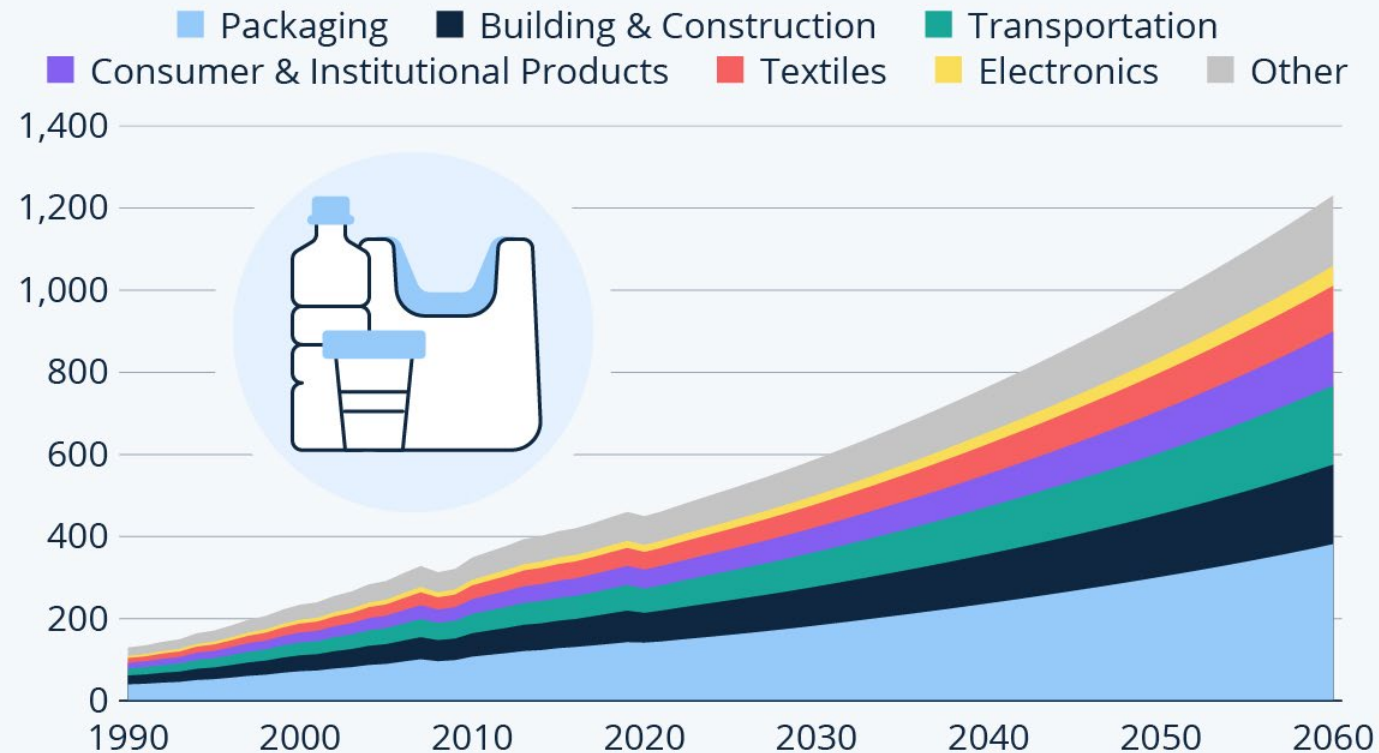


Plastic
pellets
0.3%

Source: International Union for Conservation of Nature

Packaging Is the Biggest Driver of Global Plastics Use

Estimated/projected global plastics use
by sector/application (in million tonnes)

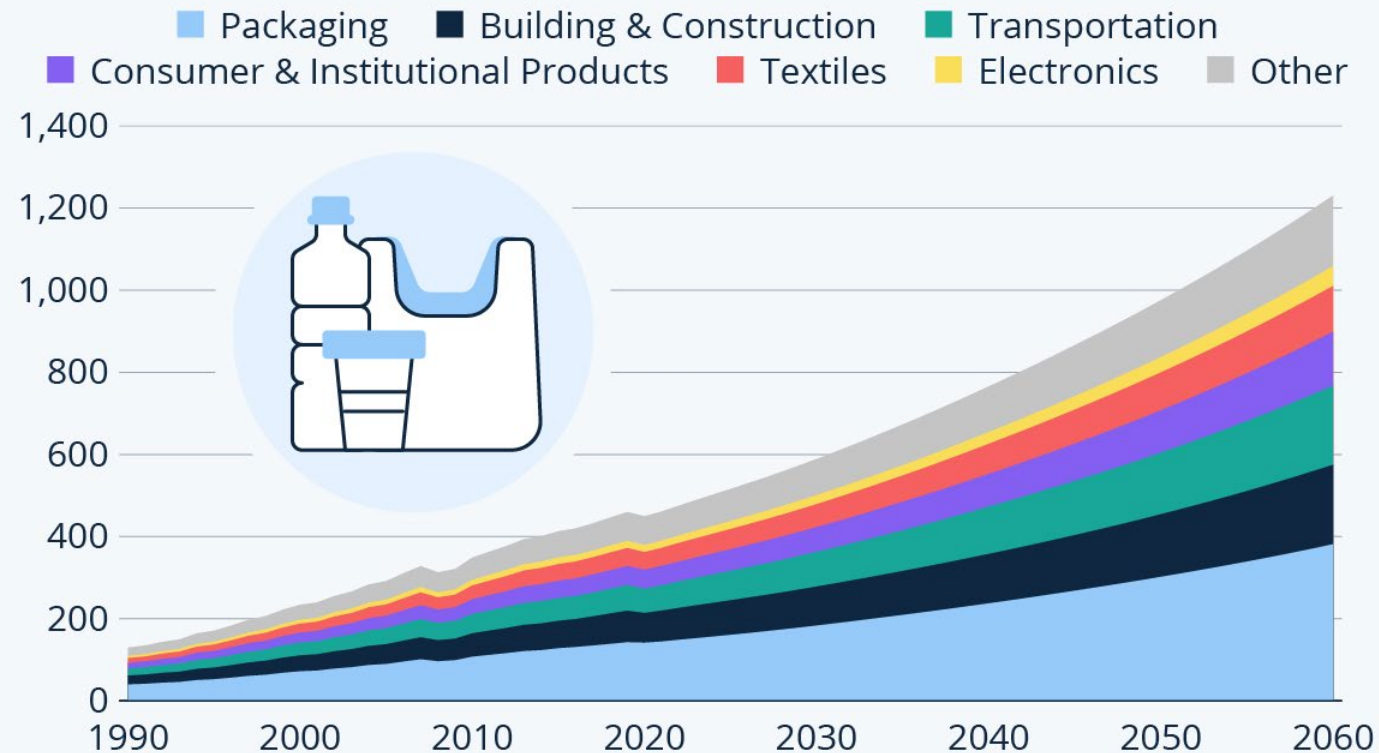


Data from 2019 onwards is based on OECD projections

Source: OECD

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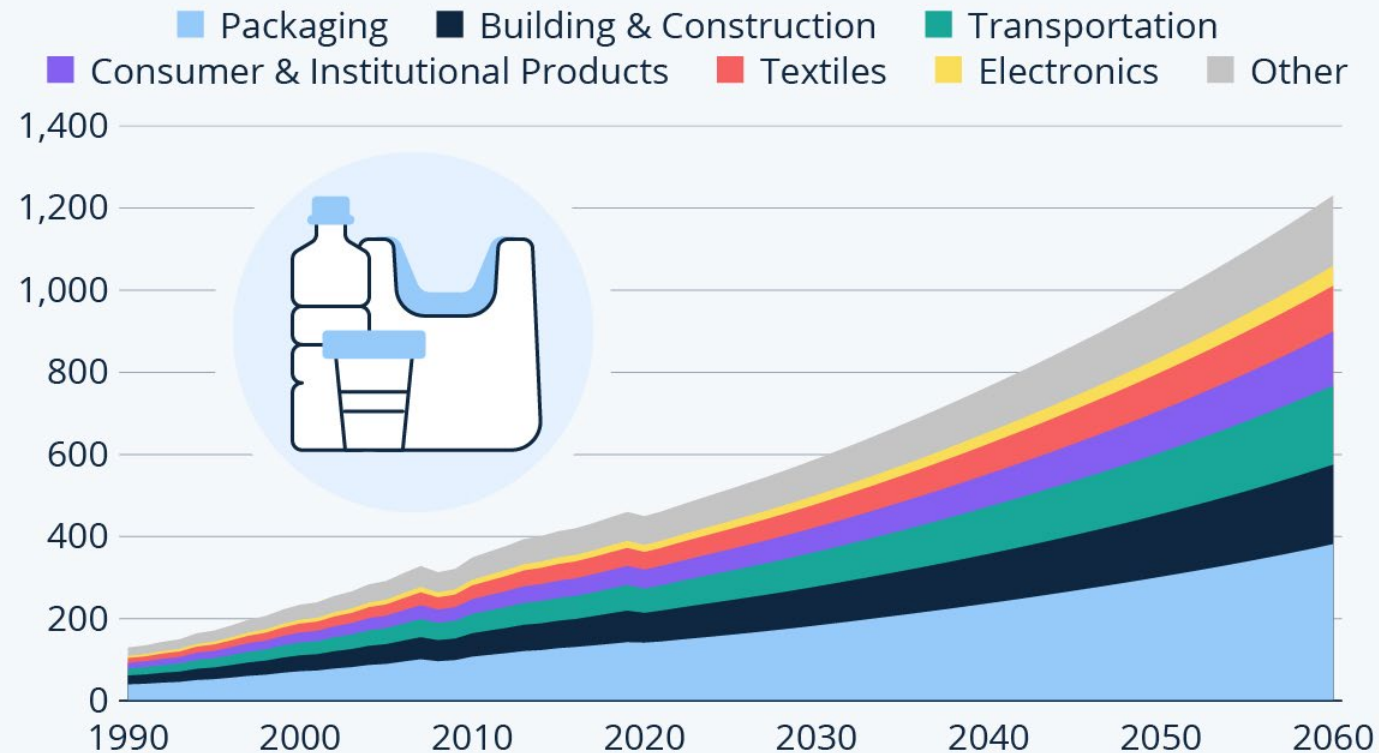


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Packaging

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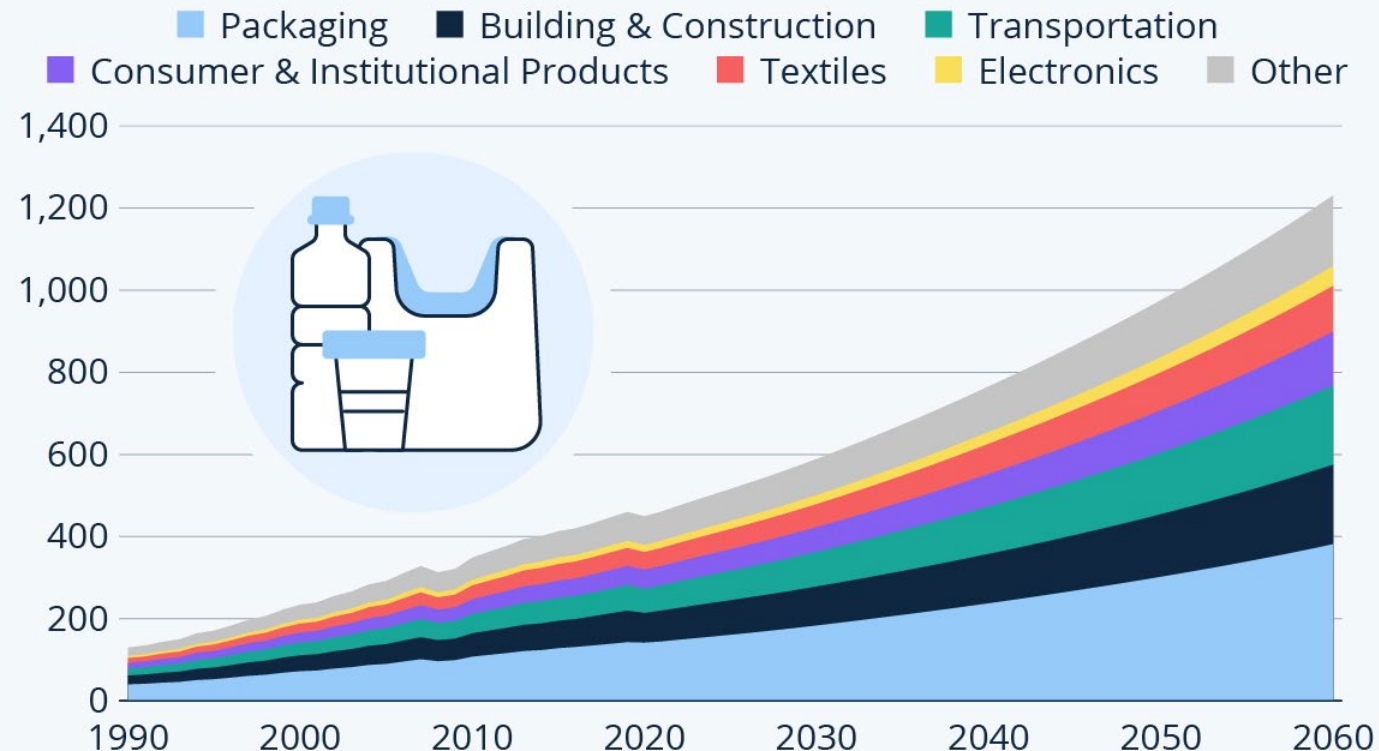
Data from 2019 onwards is based on OECD projections
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Building Construction

Packaging

Packaging Is the Biggest Driver of Global Plastics Use

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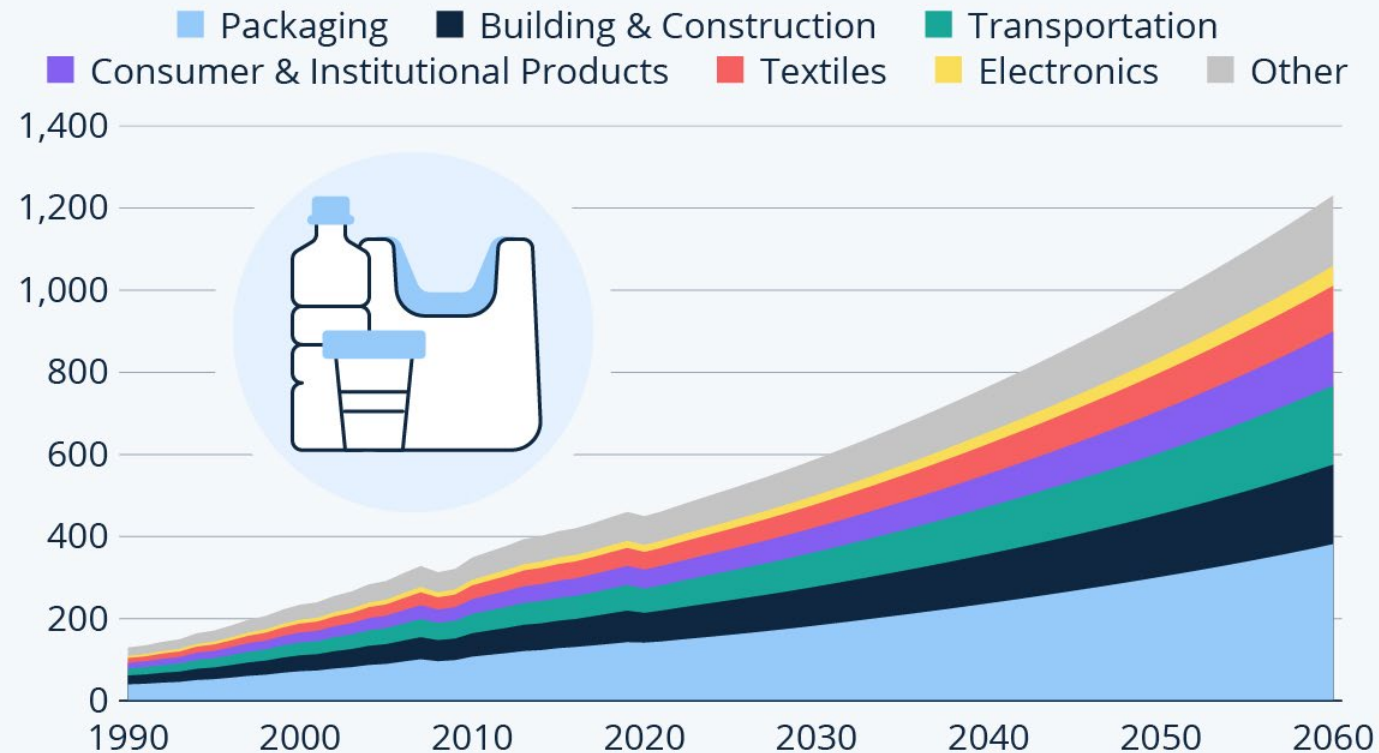
Data from 2019 onwards is based on OECD projections

Source: OECD

Transportation
Building Construction
Packaging

Packaging Is the Biggest Driver of Global Plastics Use

Estimated/projected global plastics use
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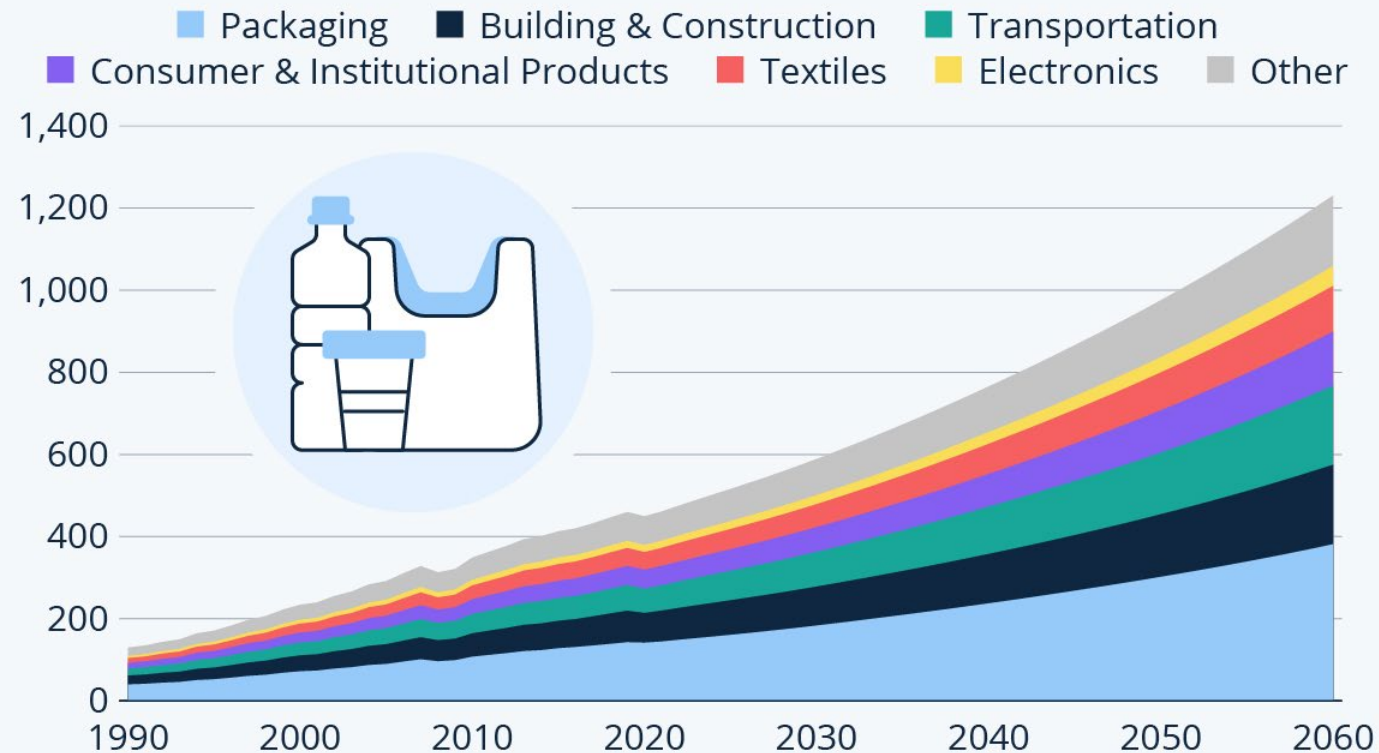
Data from 2019 onwards is based on OECD projections

Source: OECD

Consumer/Institutional
Transportation
Building Construction
Packaging

Packaging Is the Biggest Driver of Global Plastics Use

Estimated/projected global plastics use by sector/application (in million tonnes)

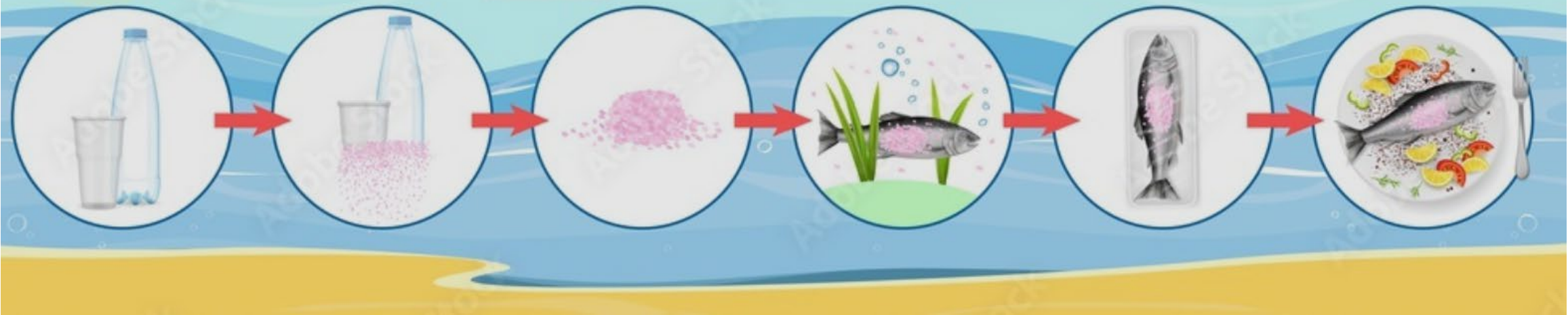


Data from 2019 onwards is based on OECD projections

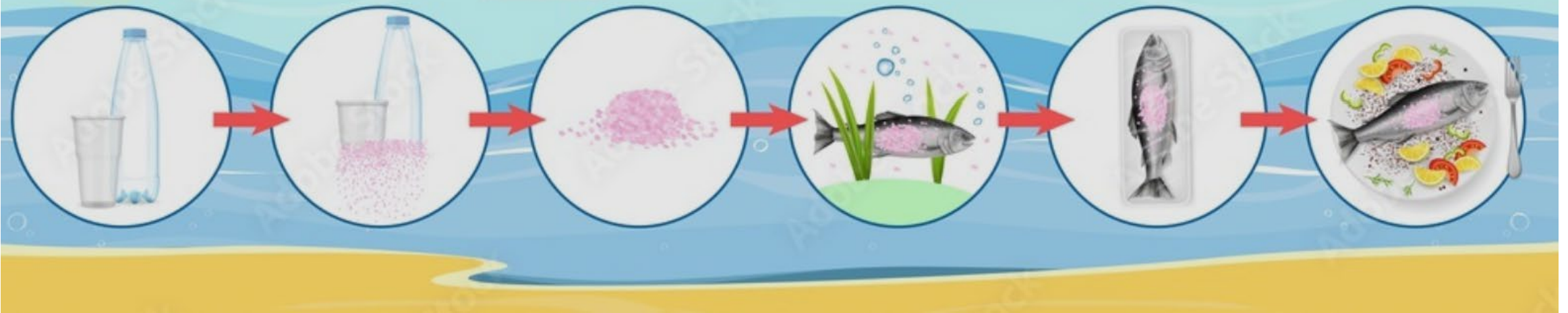
Source: OECD

Textiles
Consumer/Institutional
Transportation
Building Construction
Packaging

MICROPLASTIC IN FOOD CHAIN



MICROPLASTIC IN FOOD CHAIN





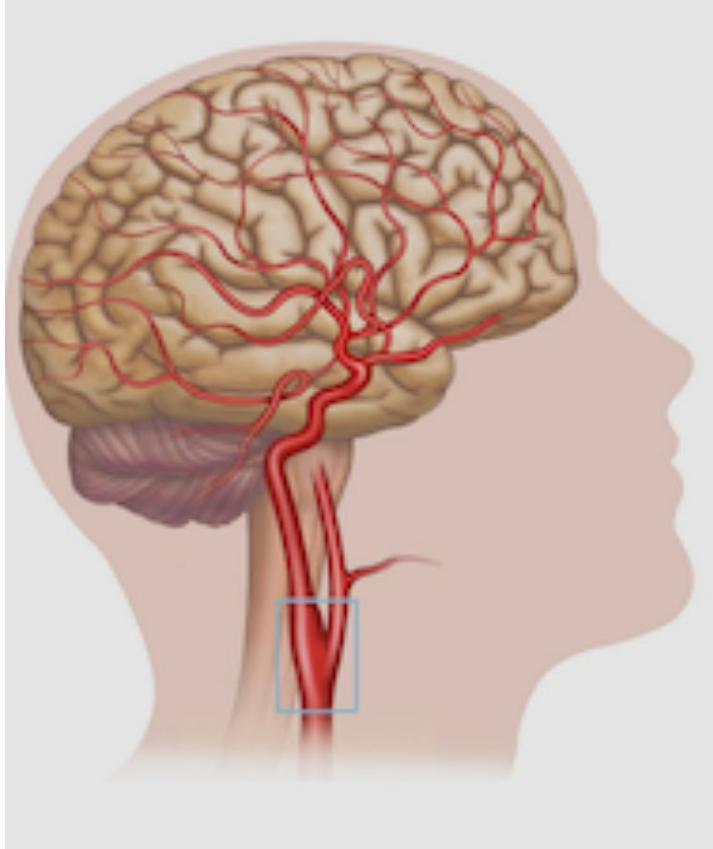
Animals Get Plastic

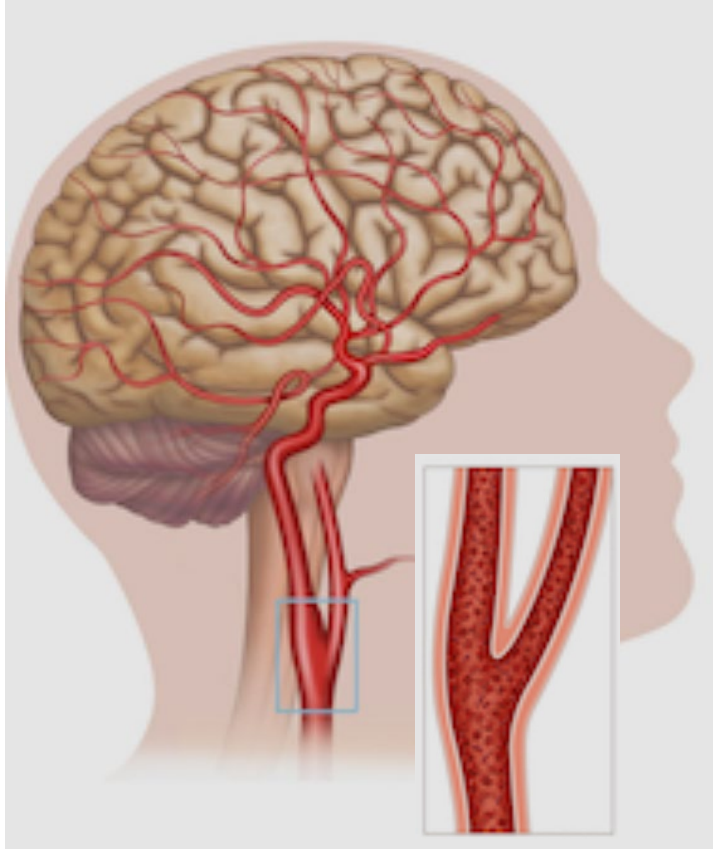


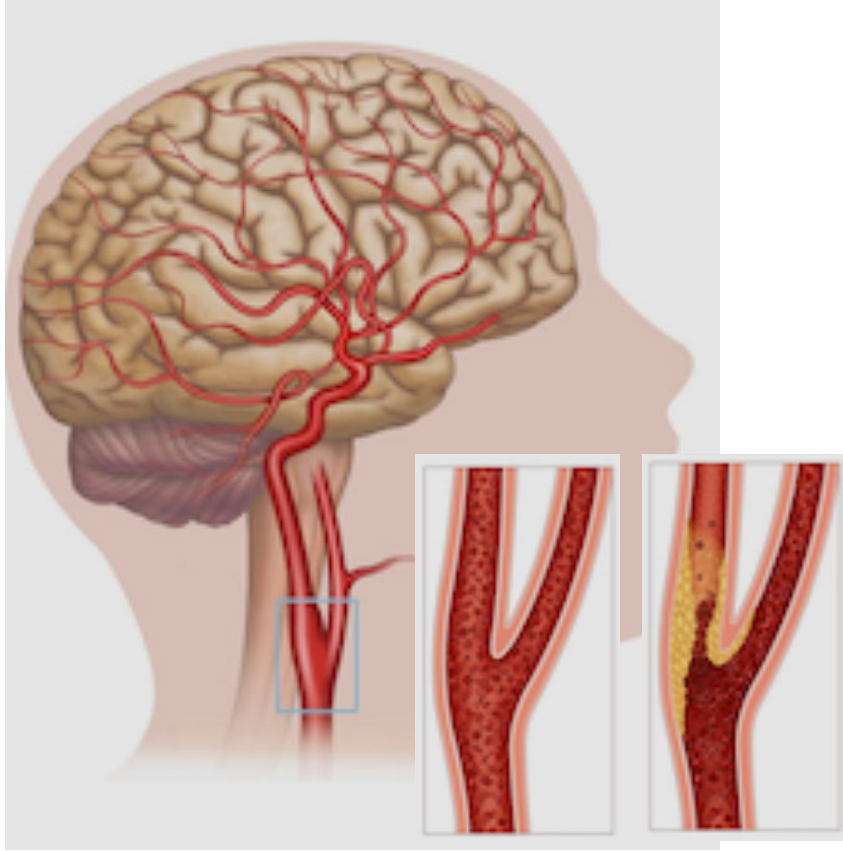
ORIGINAL ARTICLE

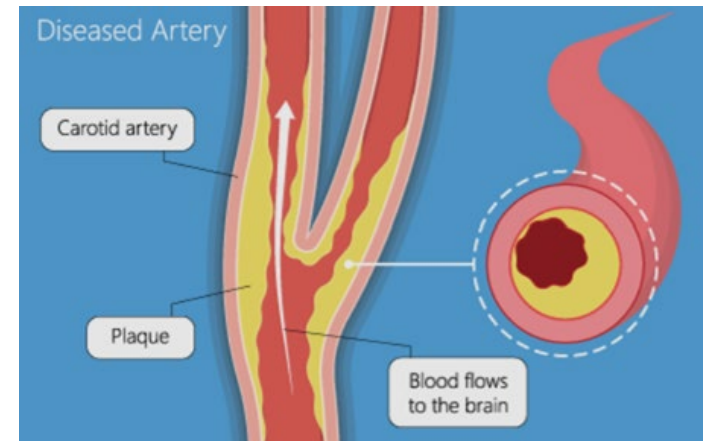
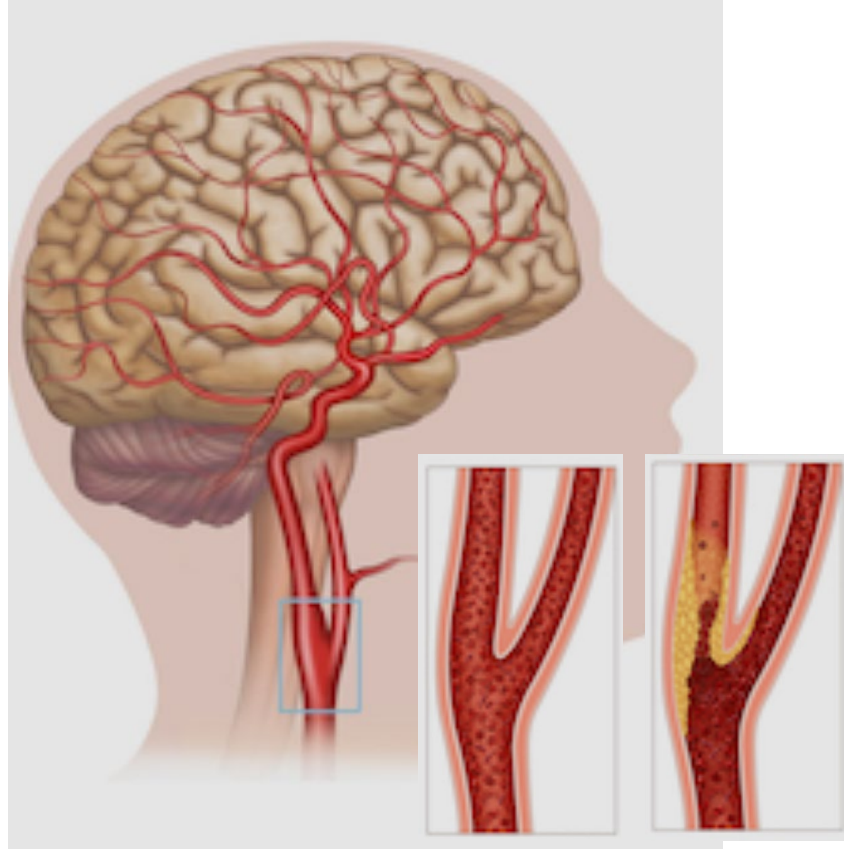
Microplastics and Nanoplastics in Atheromas and Cardiovascular Events

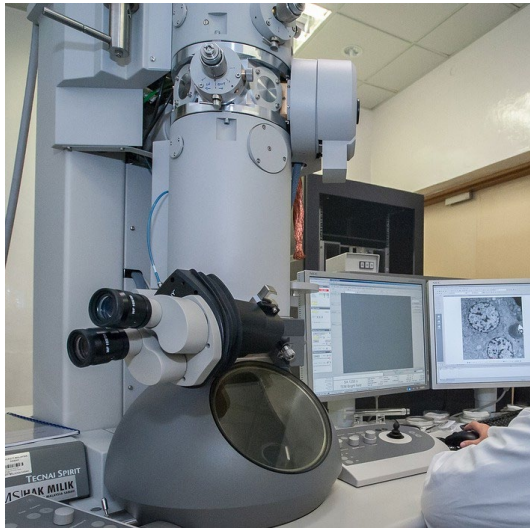
R. Marfella, F. Prattichizzo, C. Sardu, G. Fulgenzi, L. Graciotti, T. Spadoni,
N. D'Onofrio, L. Scisciola, R. La Grotta, C. Frigé, V. Pellegrini, M. Municinò,
M. Siniscalchi, F. Spinetti, G. Vigliotti, C. Vecchione, A. Carrizzo, G. Accarino,
A. Squillante, G. Spaziano, D. Mirra, R. Esposito, S. Altieri, G. Falco, A. Fenti,
S. Galoppo, S. Canzano, F.C. Sasso, G. Matakchione, F. Olivieri, F. Ferraraccio,
I. Panarese, P. Paolisso, E. Barbato, C. Lubritto, M.L. Balestrieri, C. Mauro,
A.E. Caballero, S. Rajagopalan, A. Ceriello, B. D'Agostino, P. Iovino,
and G. Paolisso

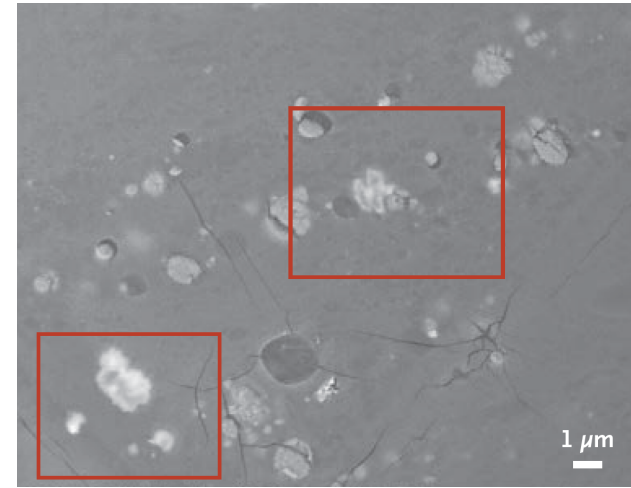
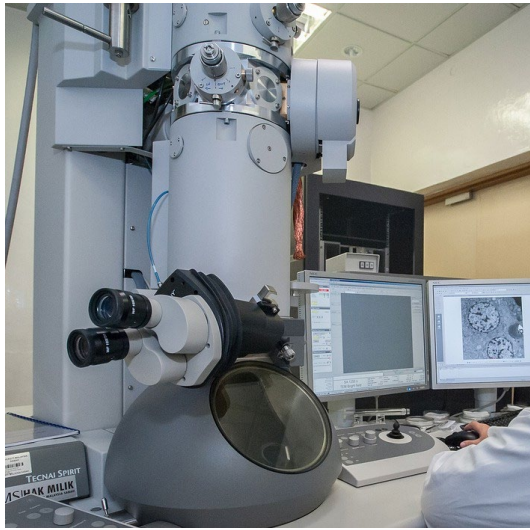


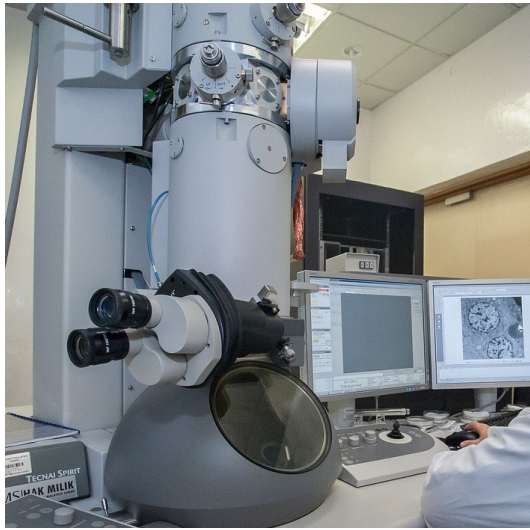


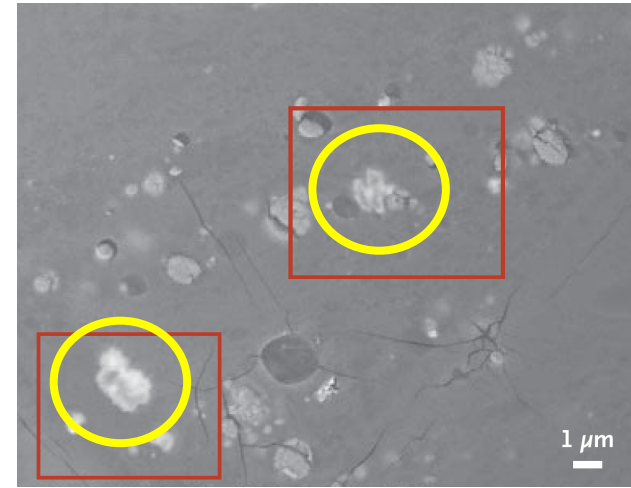
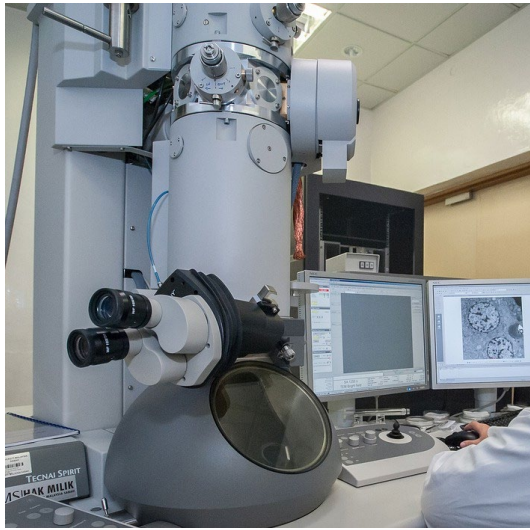


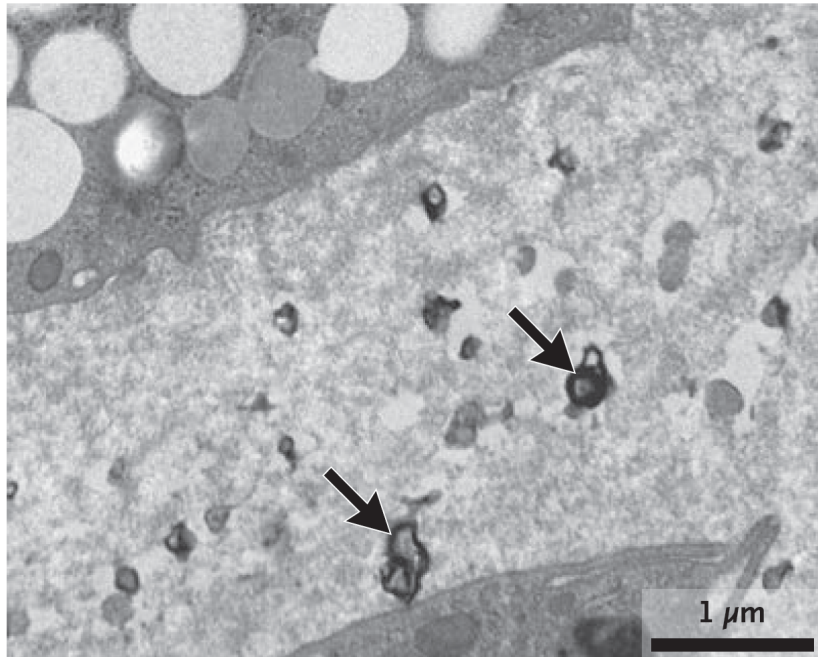
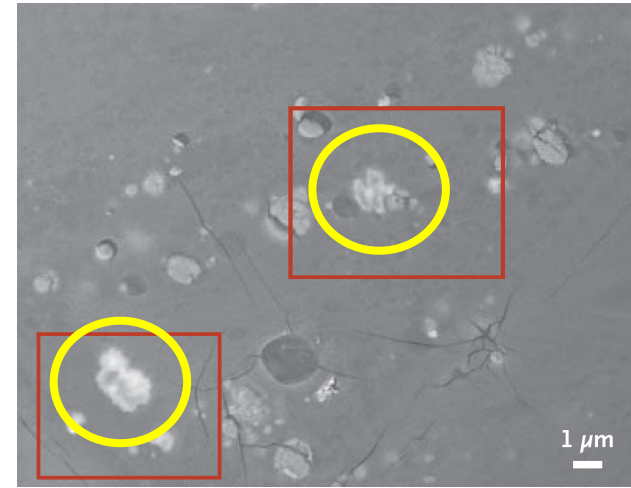
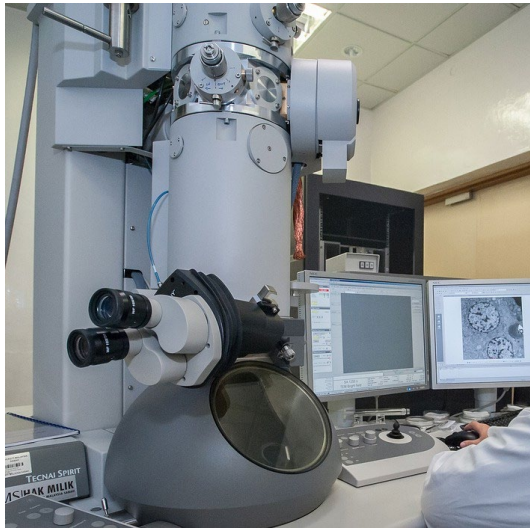


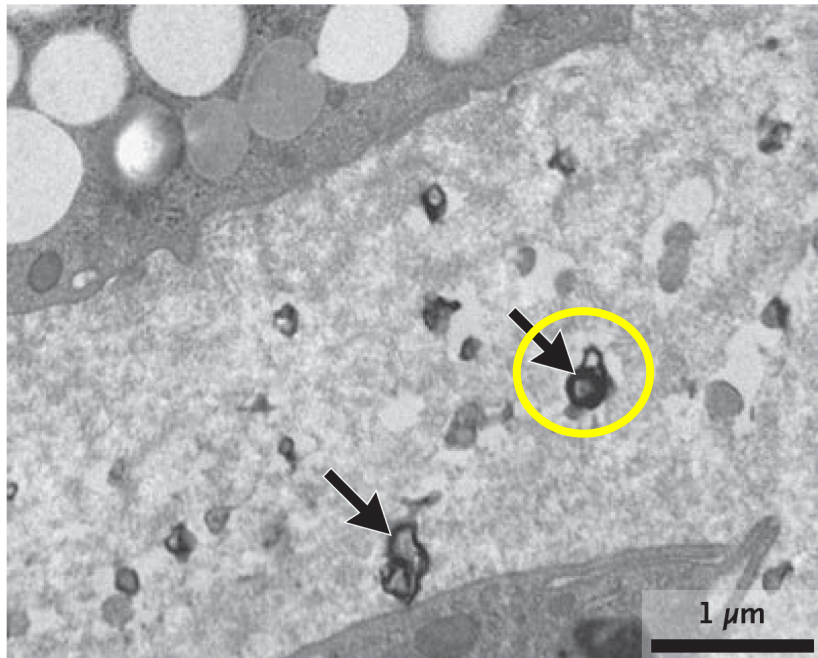
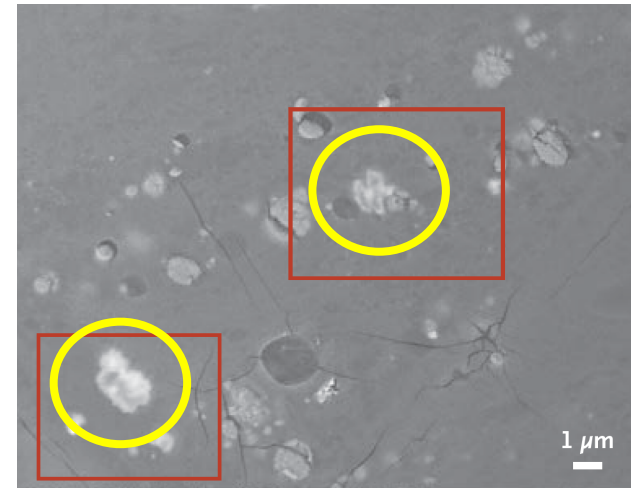
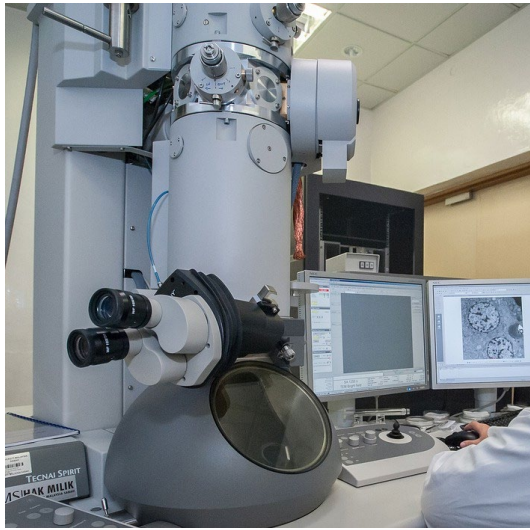


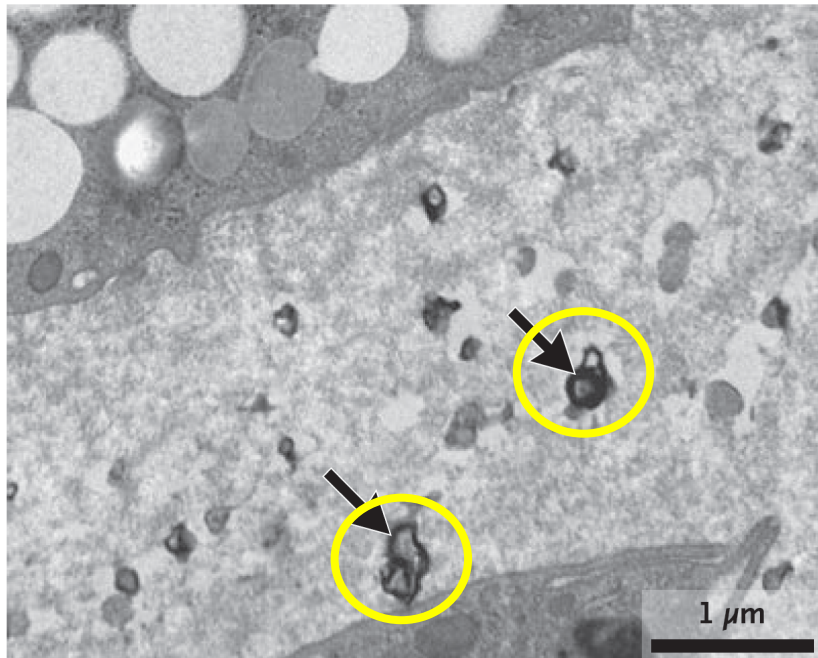
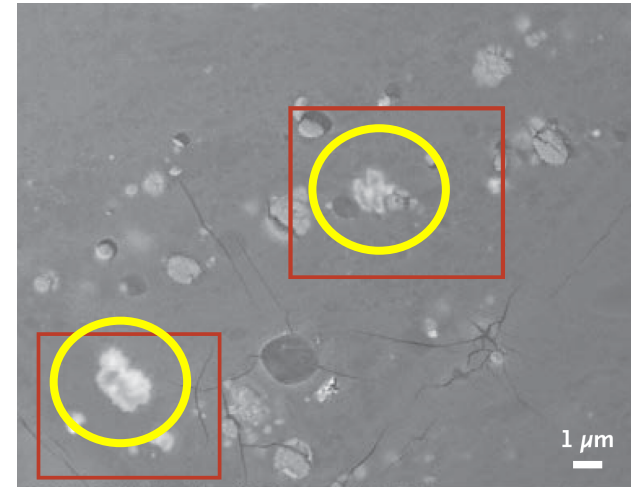
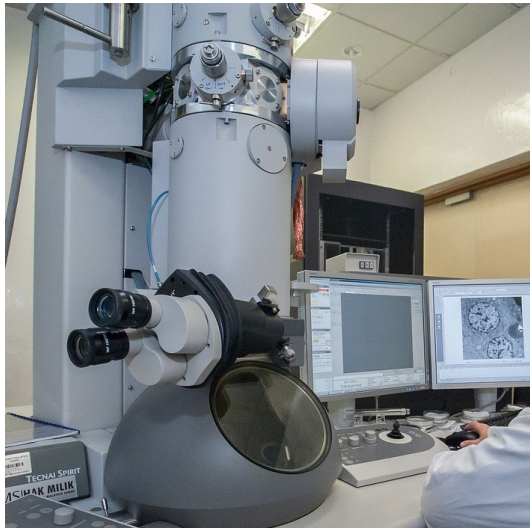


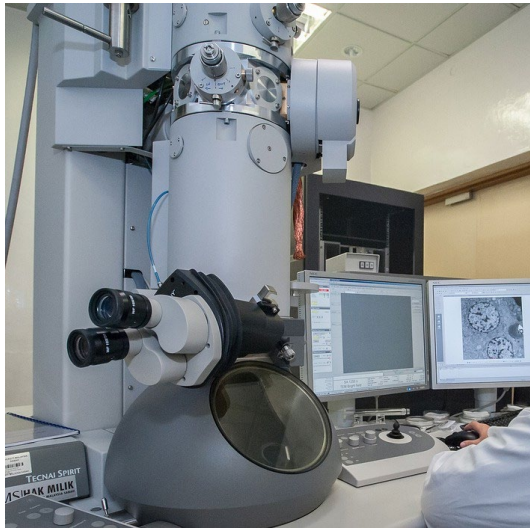




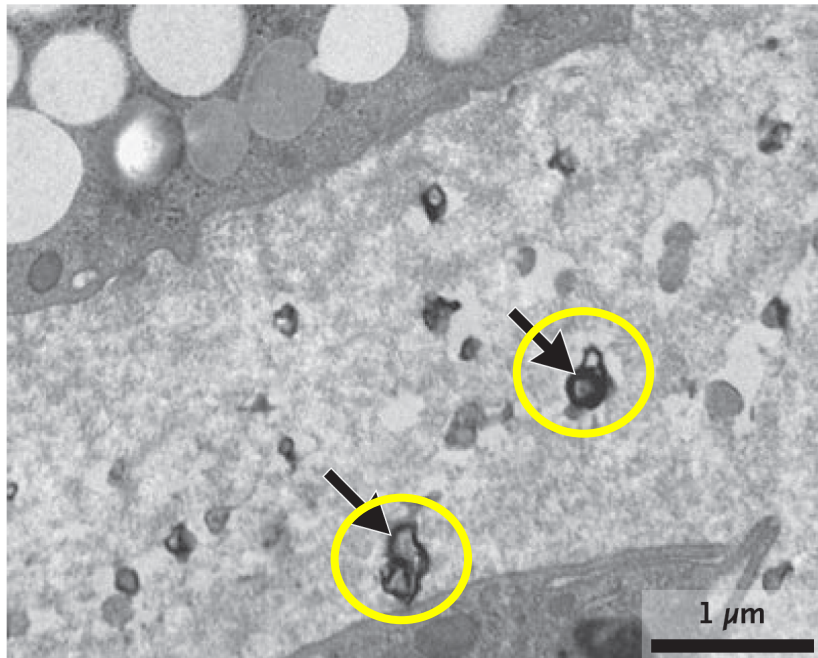
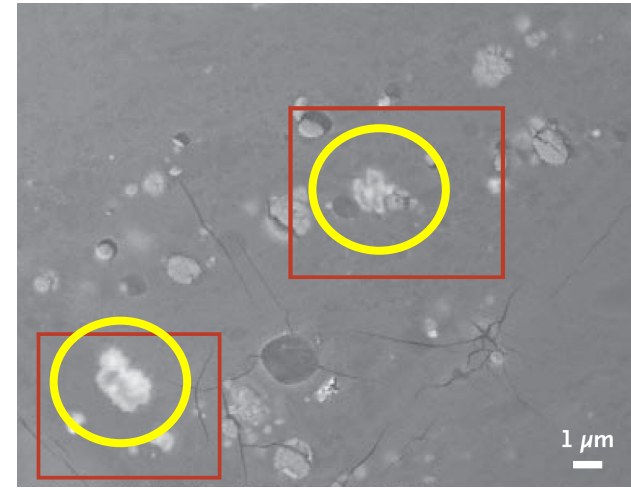


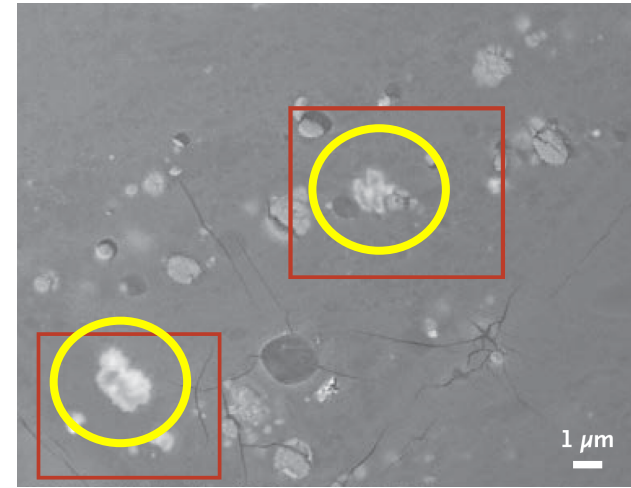
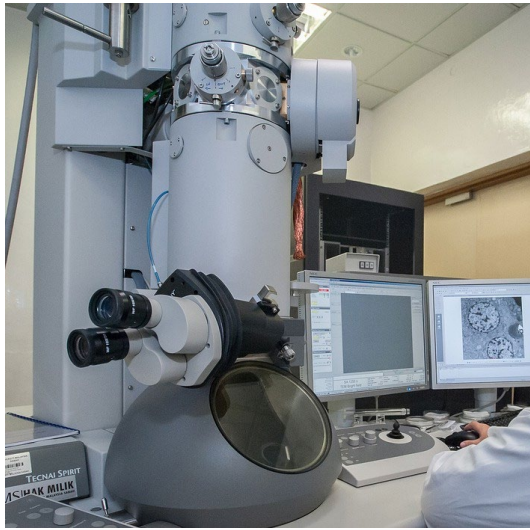




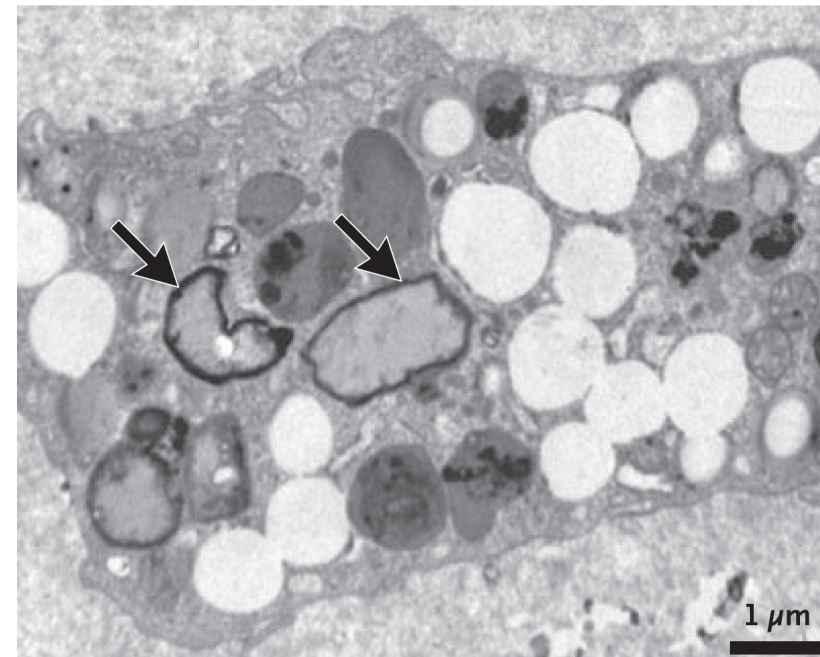
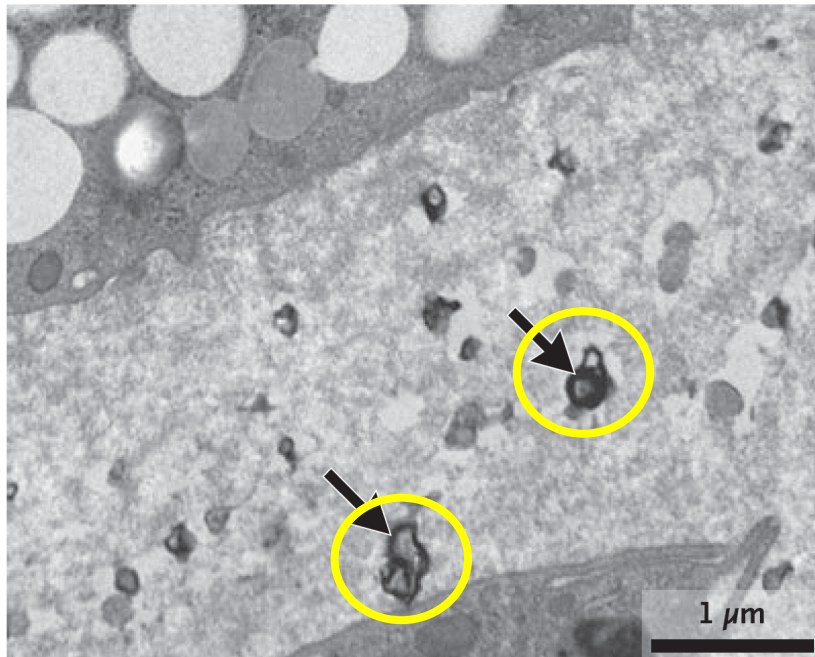


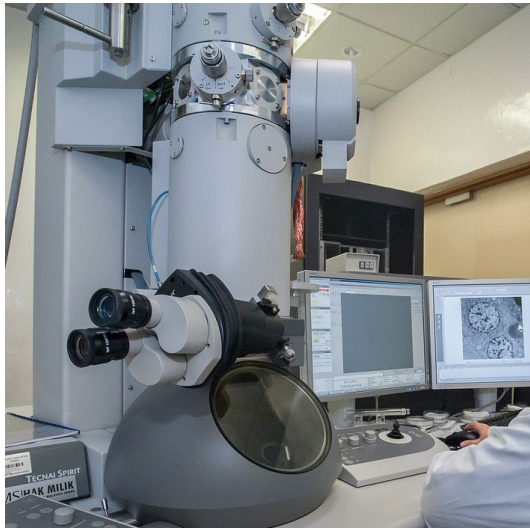
OUTSIDE MACROPHAGE



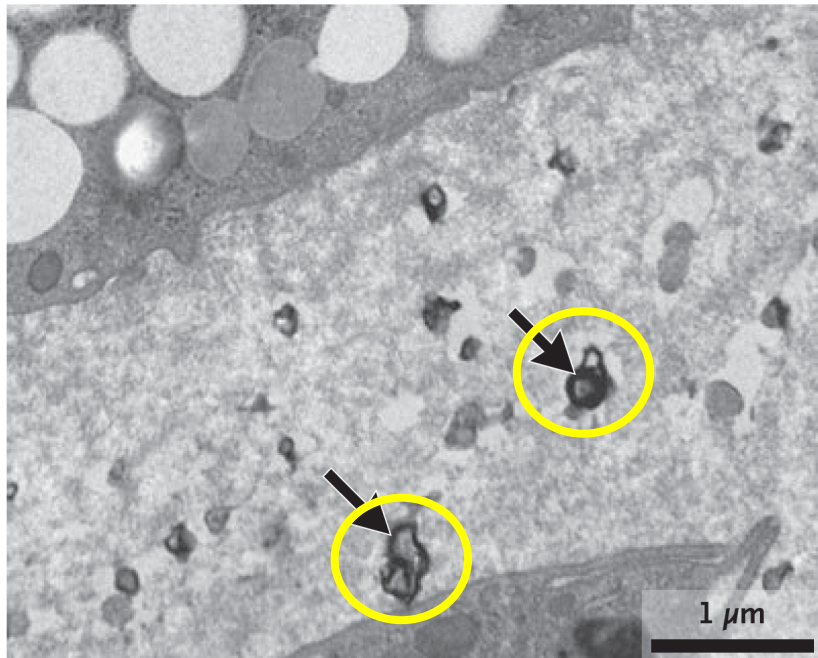
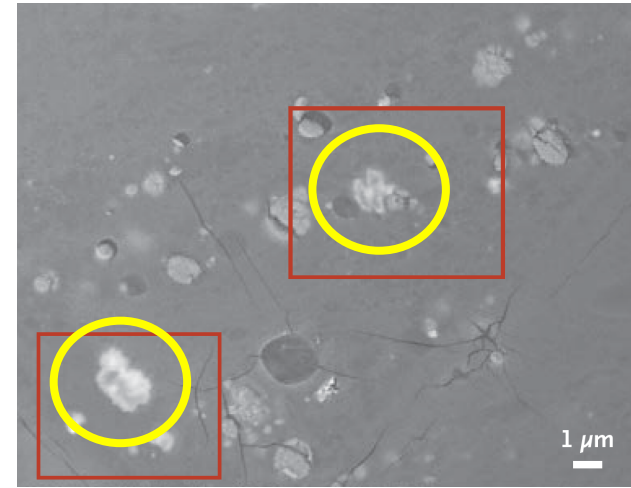


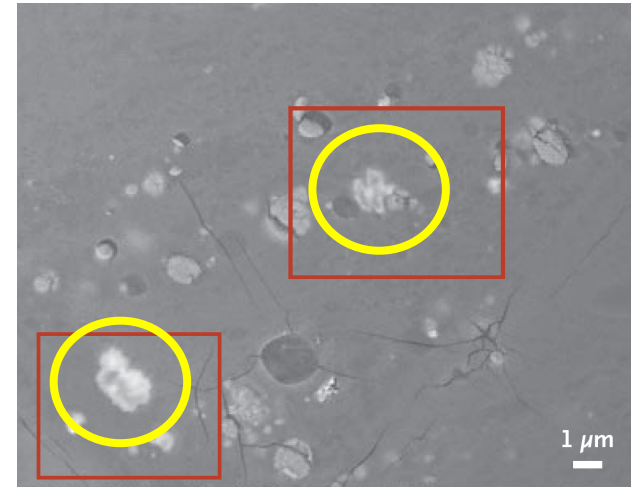
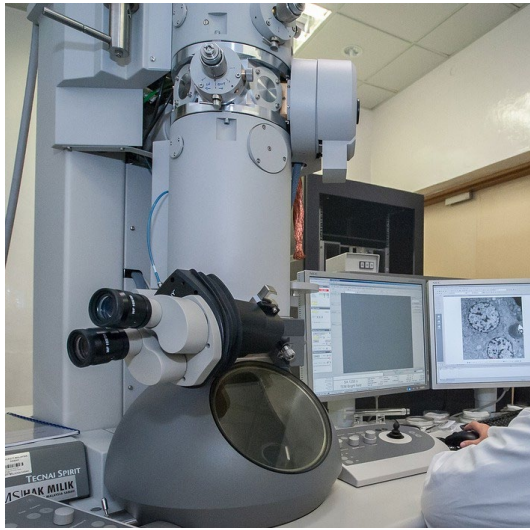
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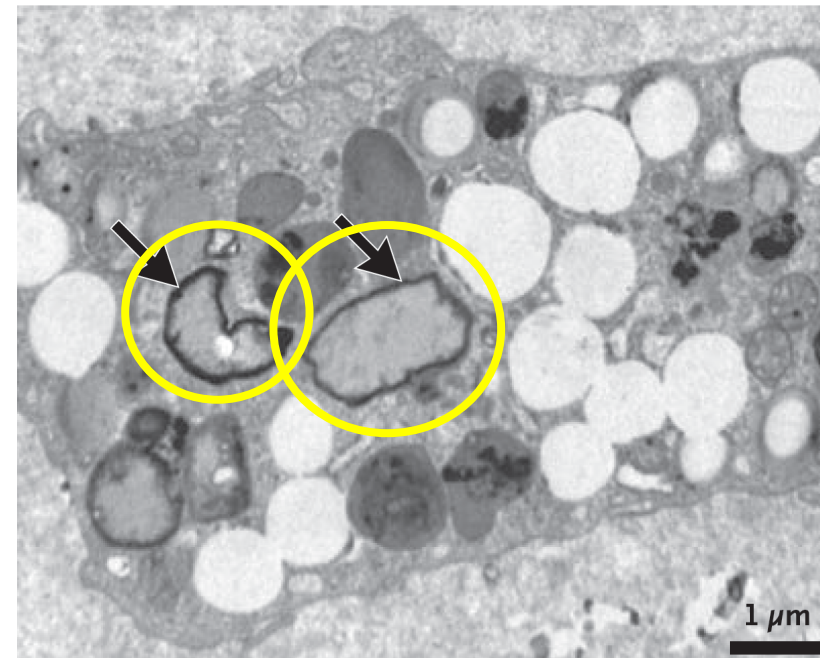
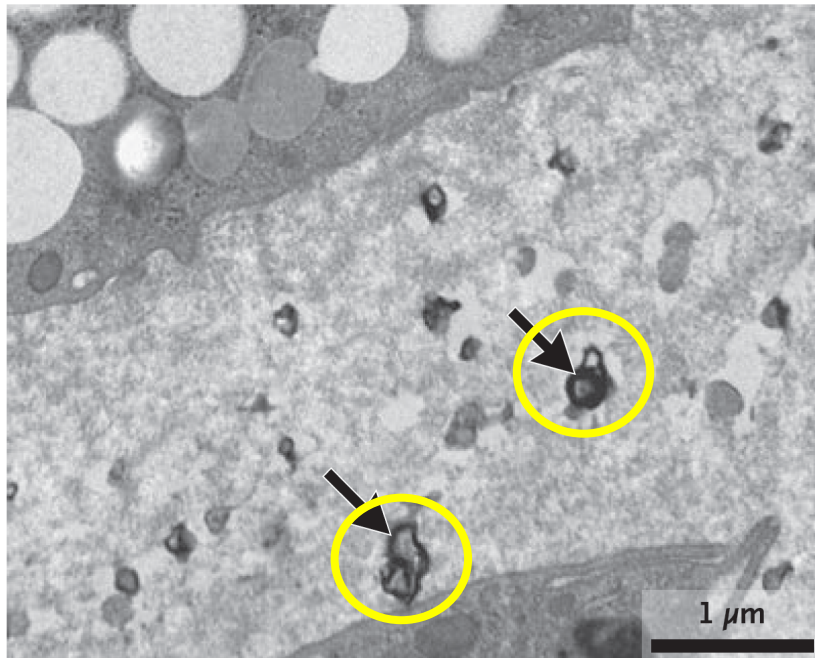


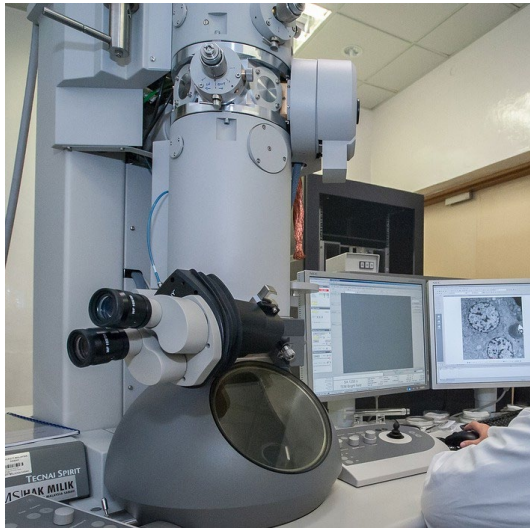
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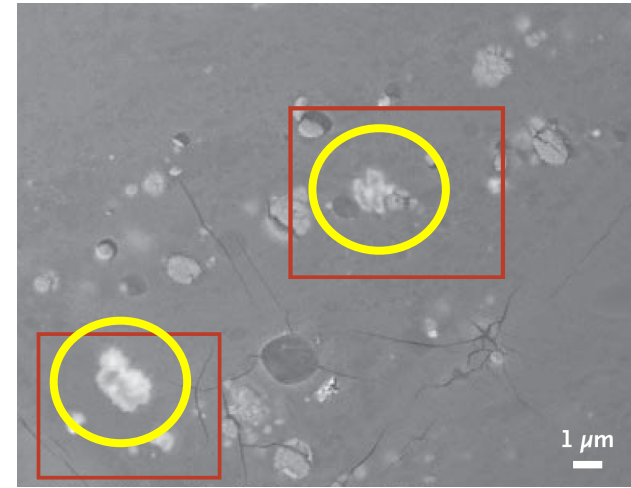
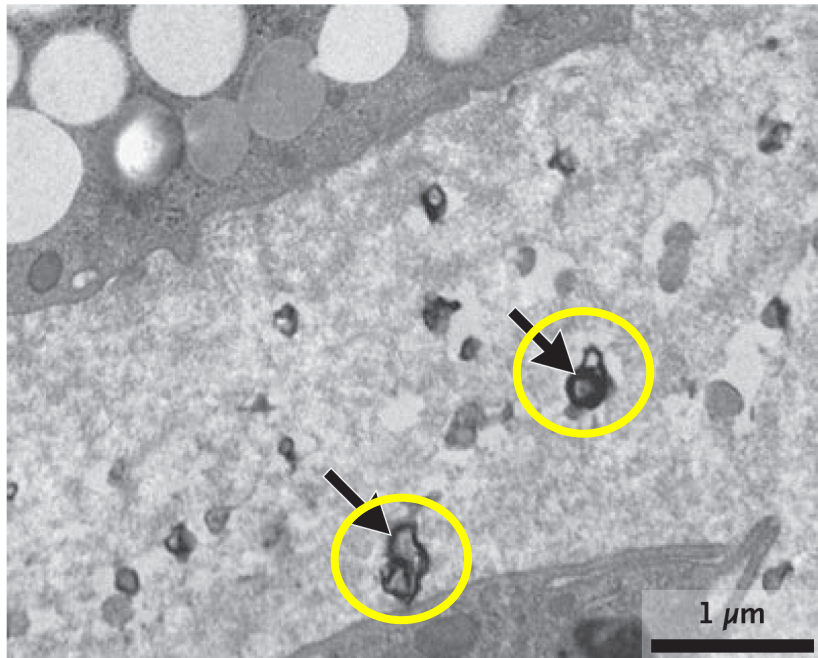


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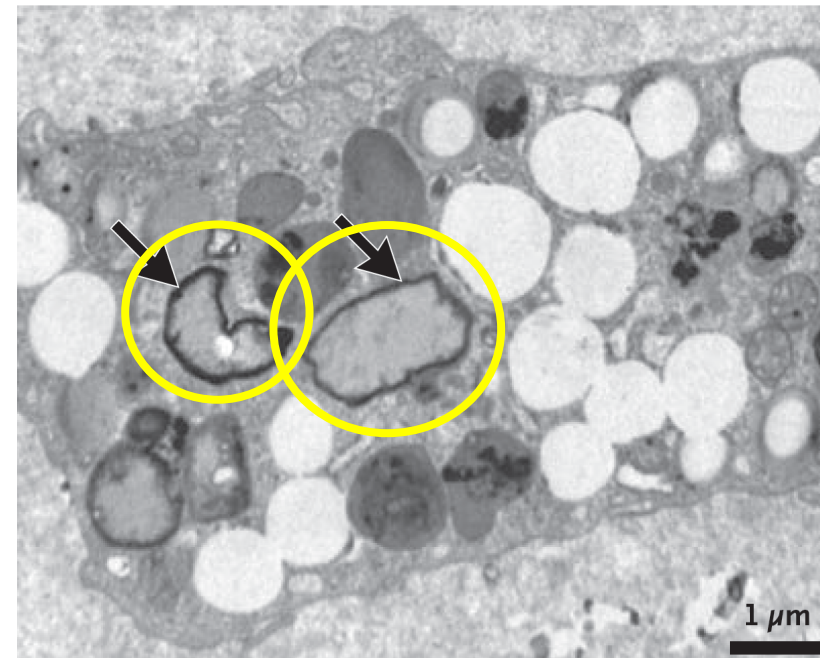




OUTSIDE MACROPHAGE



INSIDE MACROPHAGE



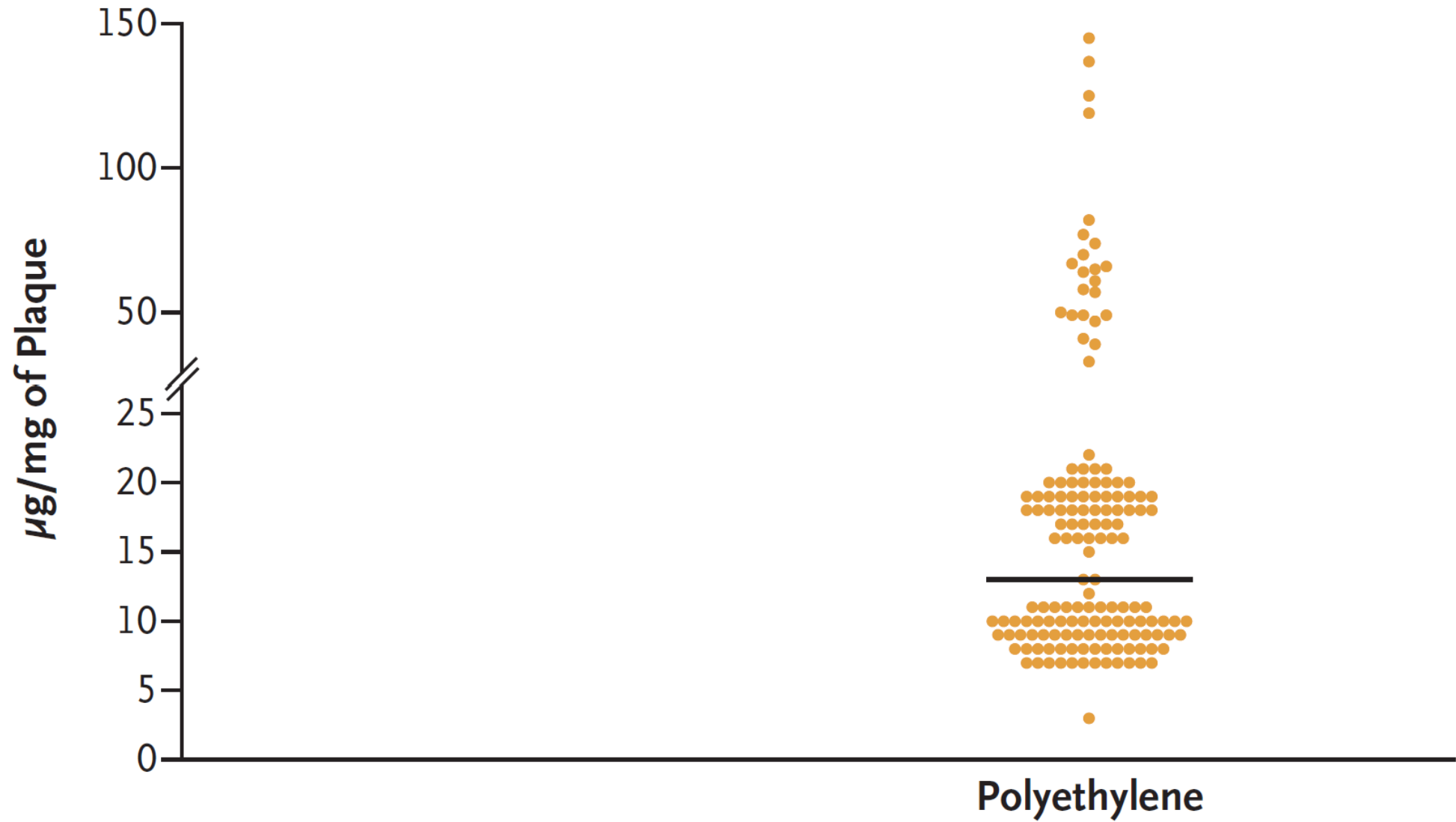
Which Plastic was it?



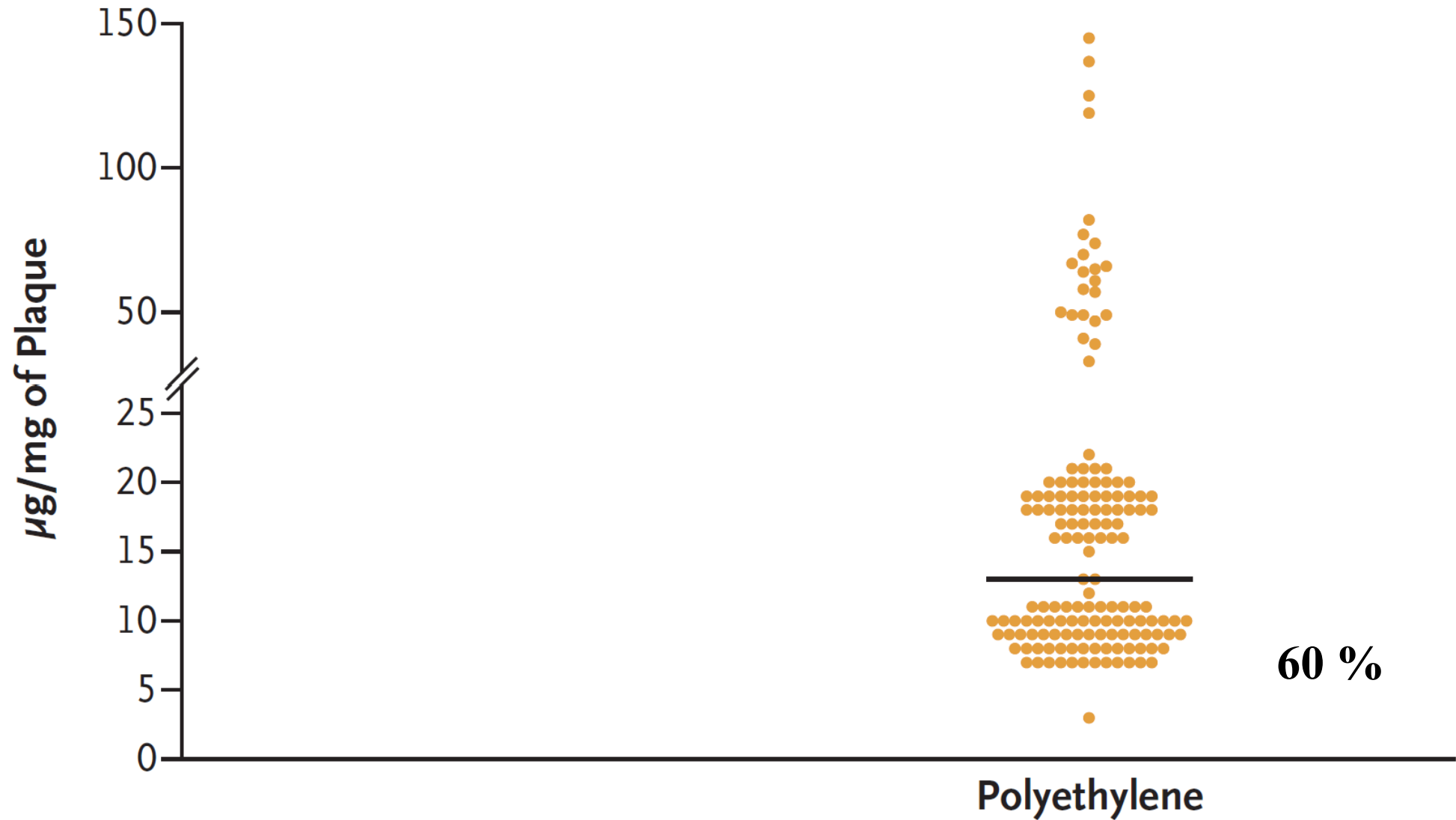
Which Plastic was it?



Which Plastic was it?



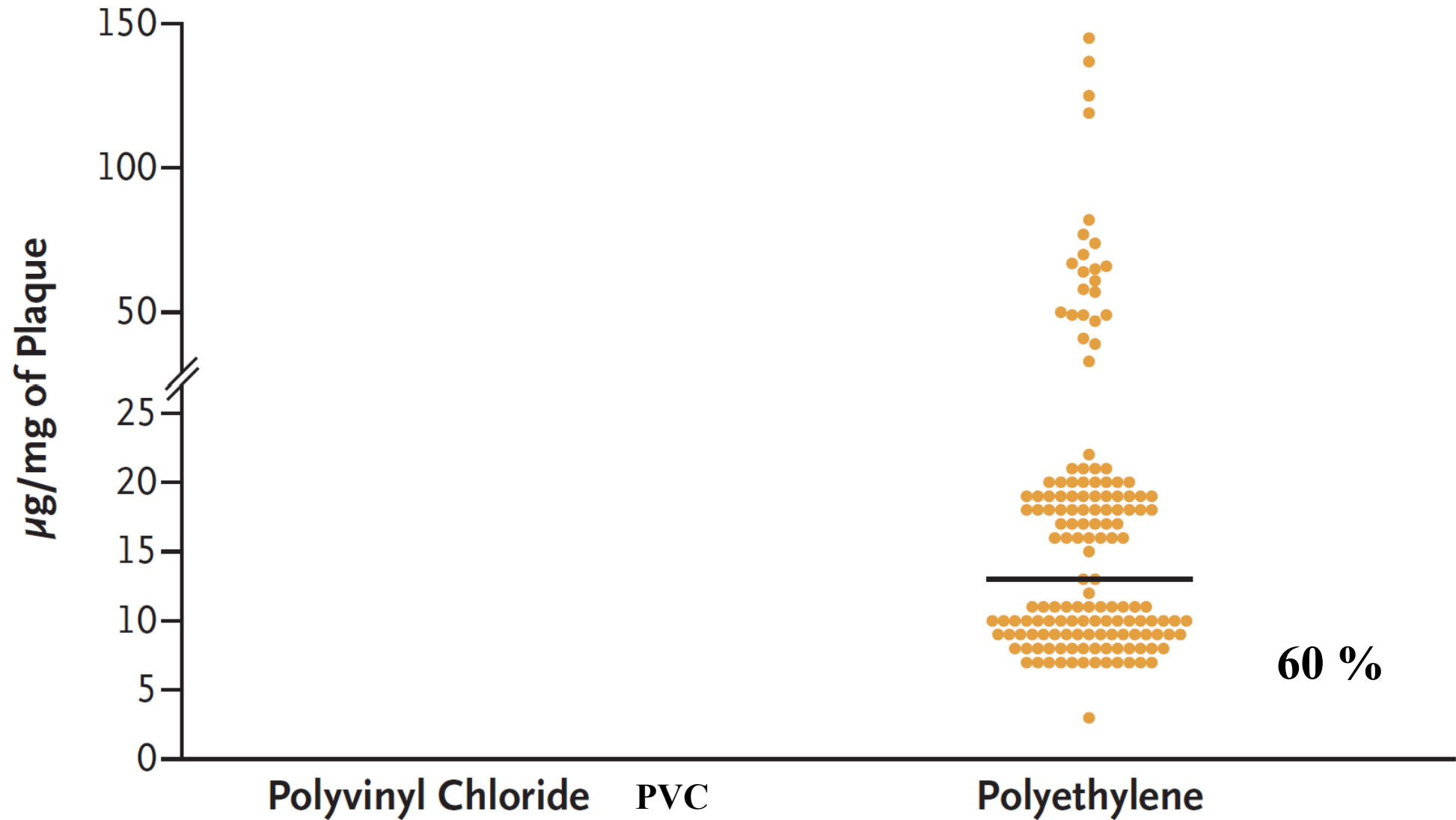
Which Plastic was it?



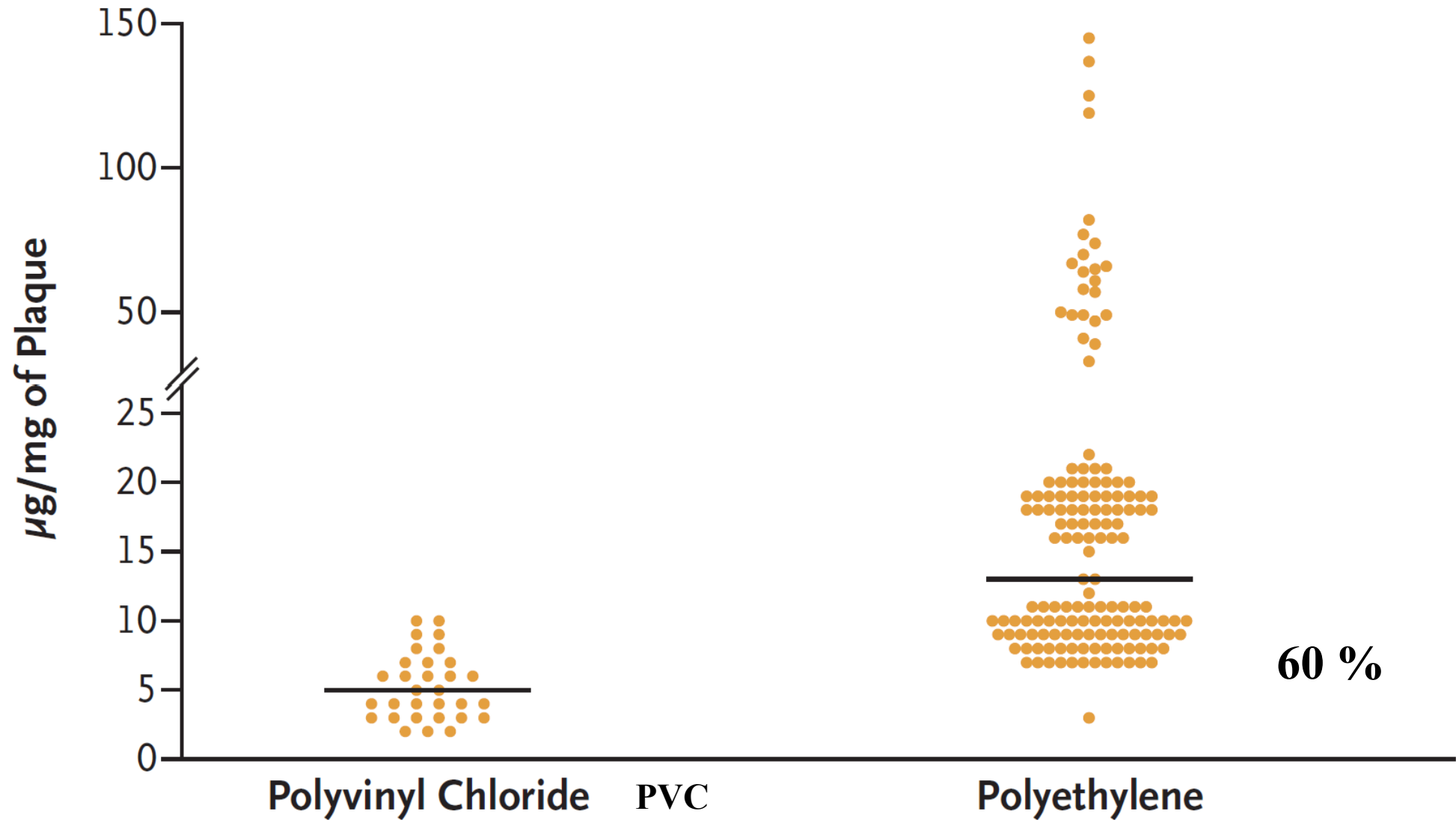
Which Plastic was it?



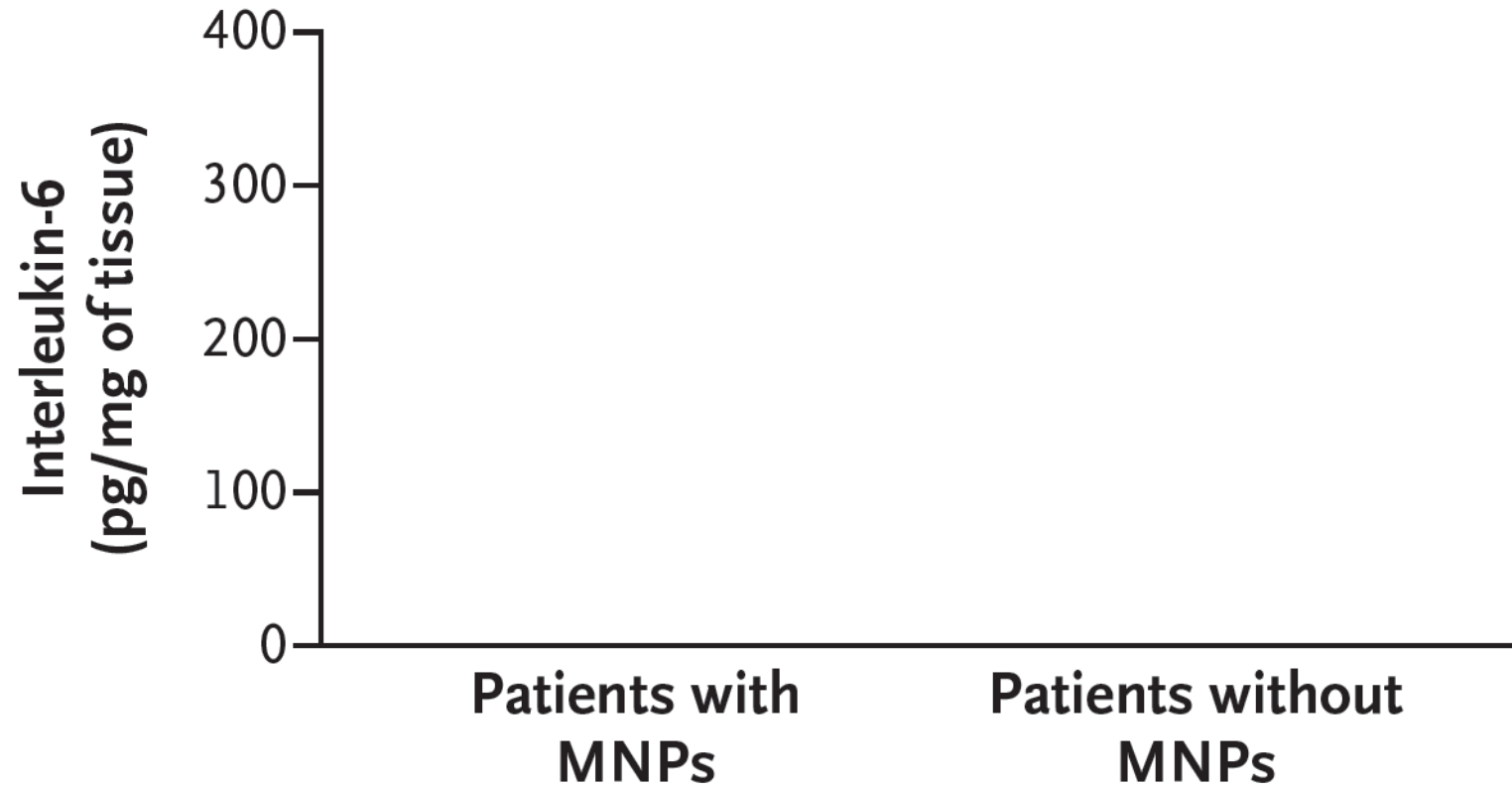
Which Plastic was it?



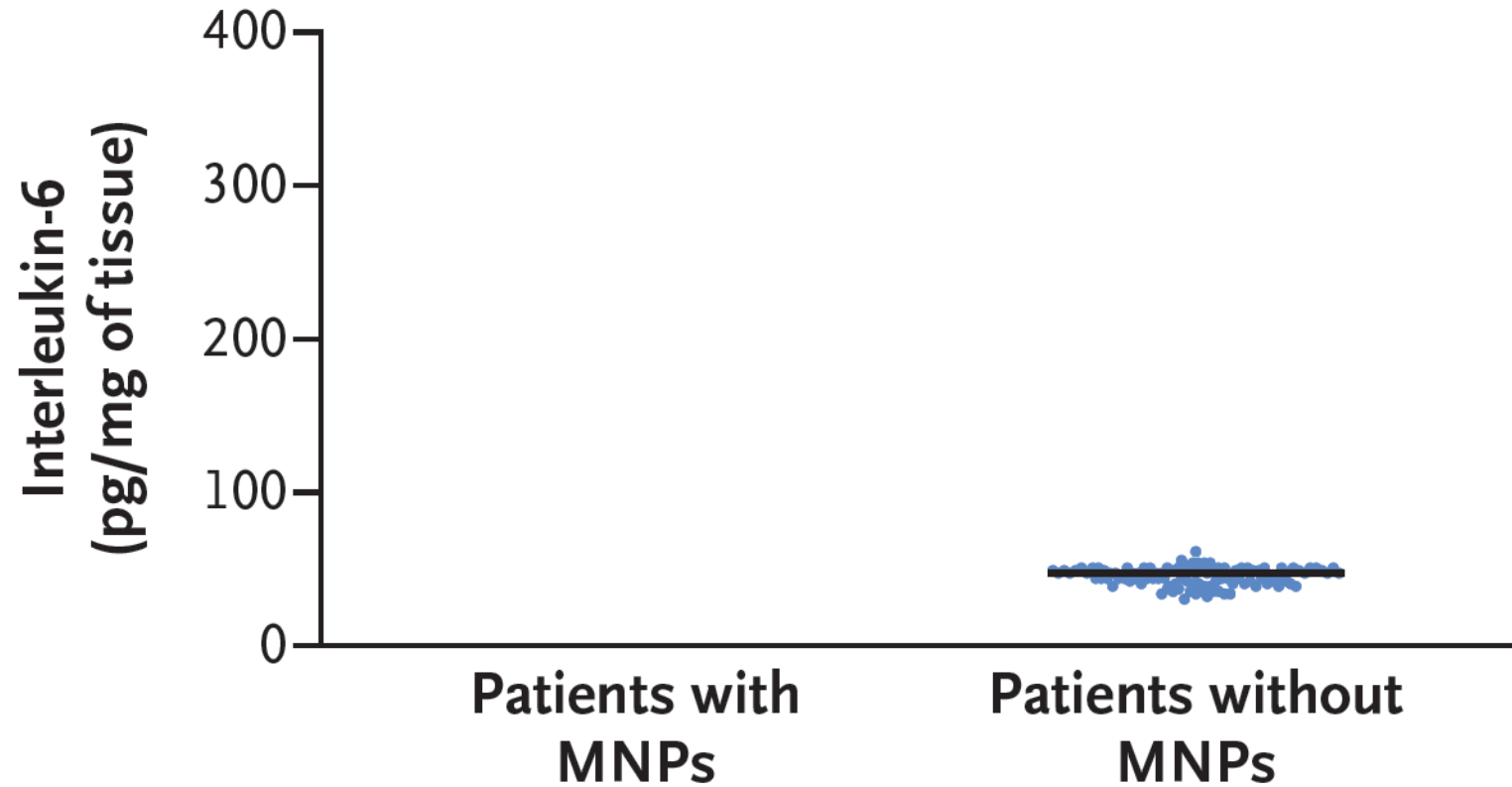
Which Plastic was it?



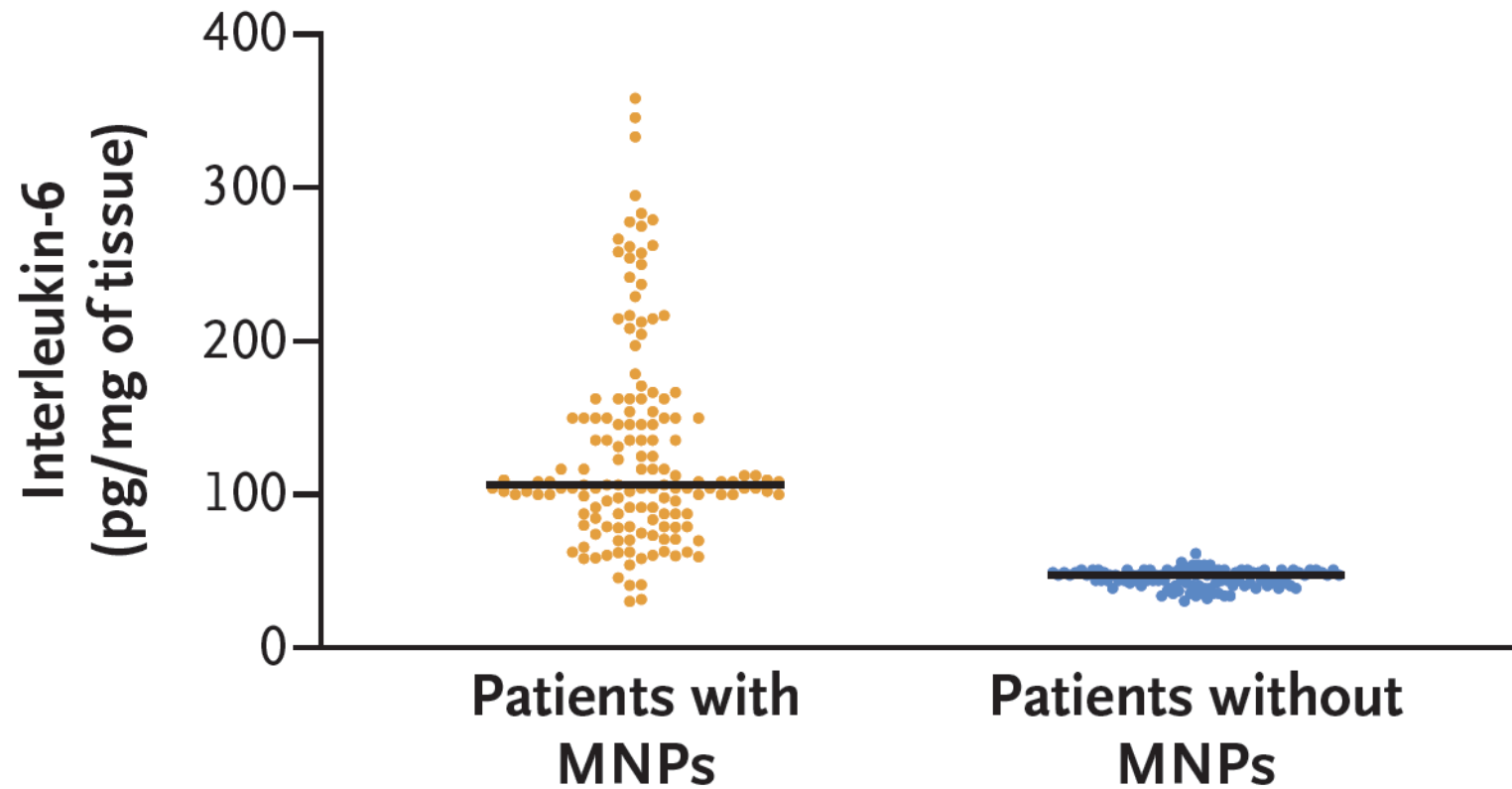
Inflammation – Interleukin-6 Levels



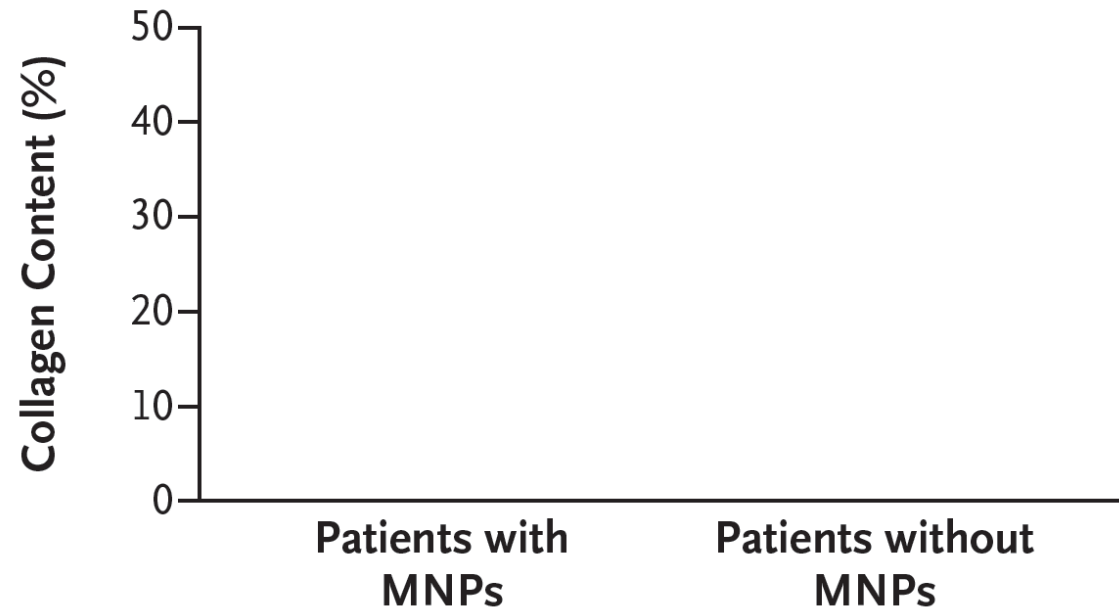
Inflammation – Interleukin-6 Levels



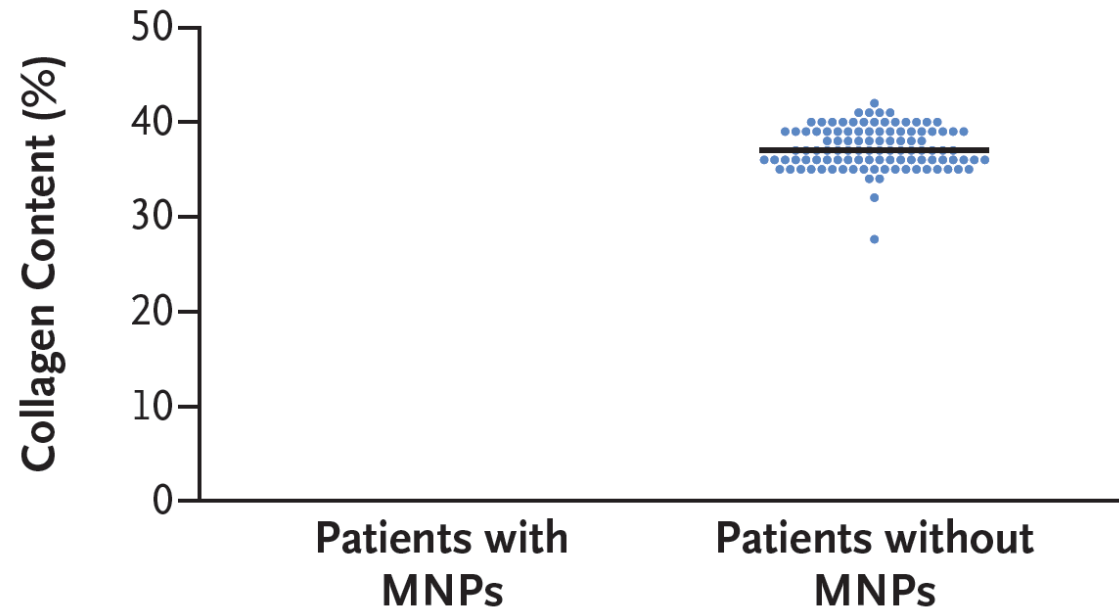
Inflammation – Interleukin-6 Levels



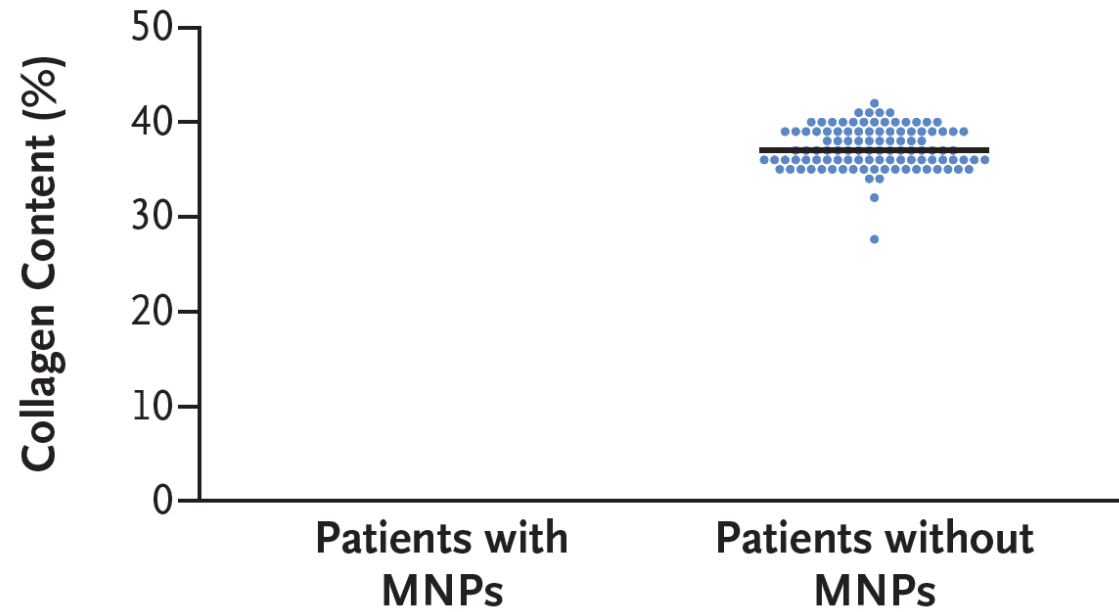
Amount of **Collagen** in Plaque



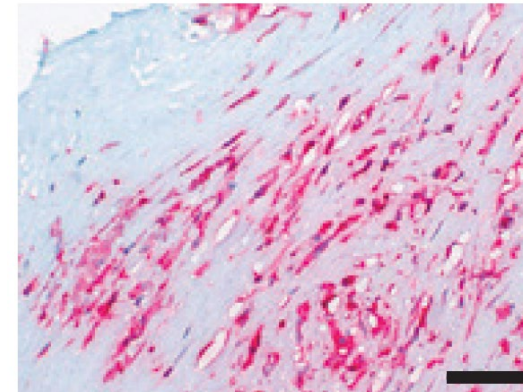
Amount of Collagen in Plaque



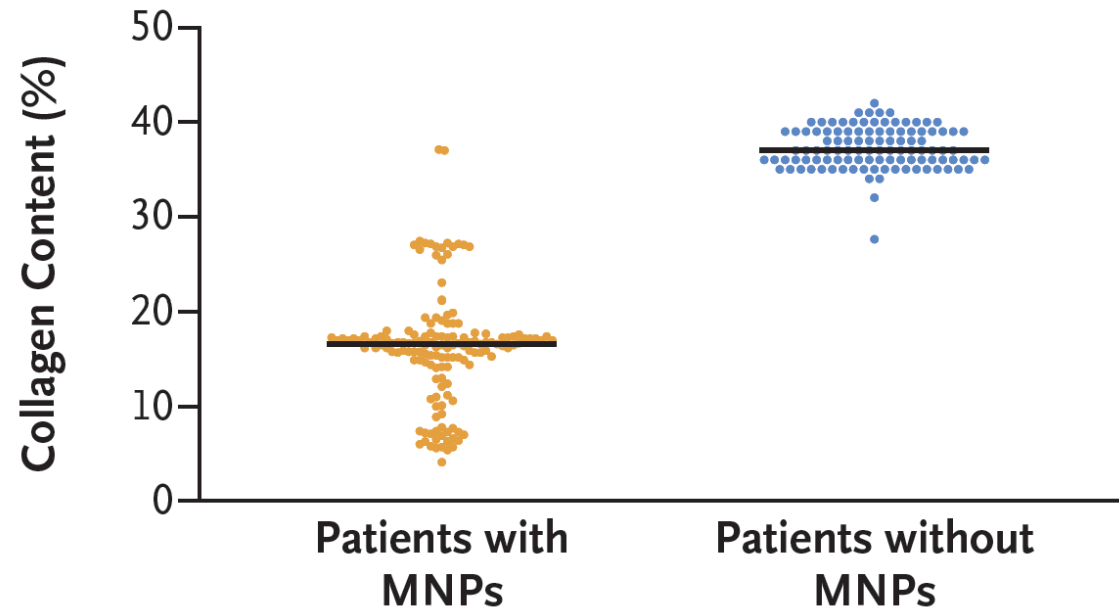
Amount of **Collagen** in Plaque



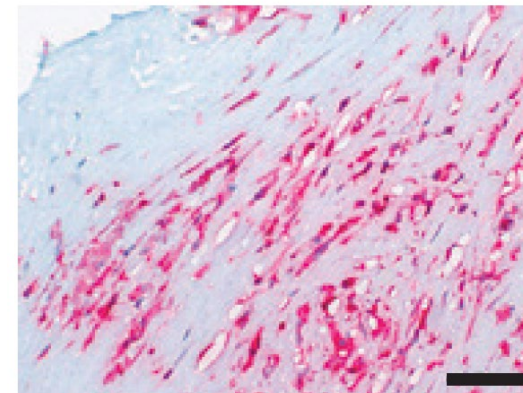
Patients without MNPs



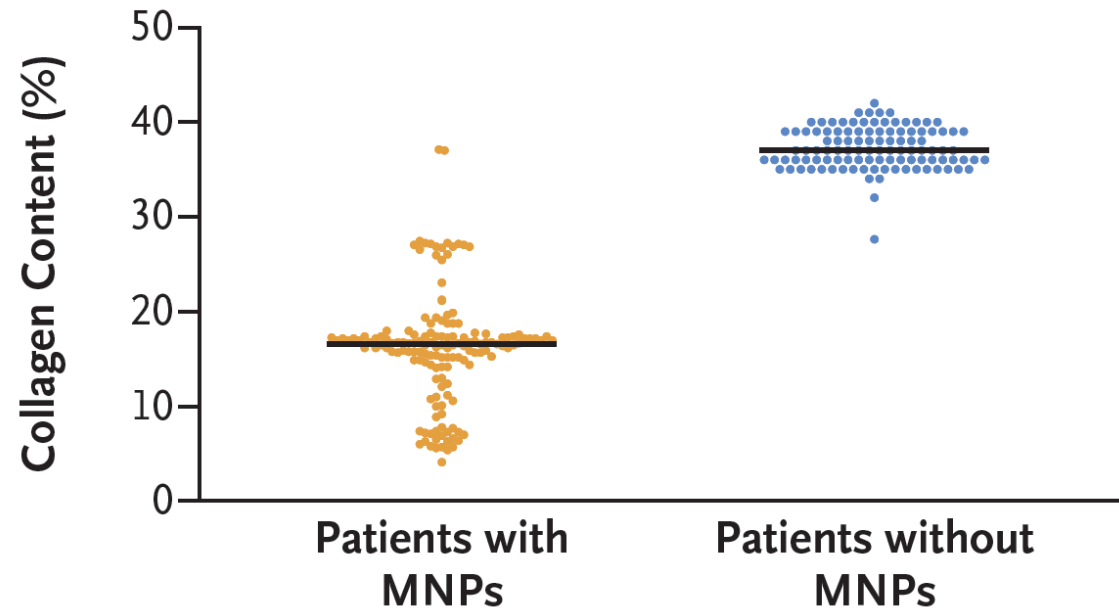
Amount of **Collagen** in Plaque



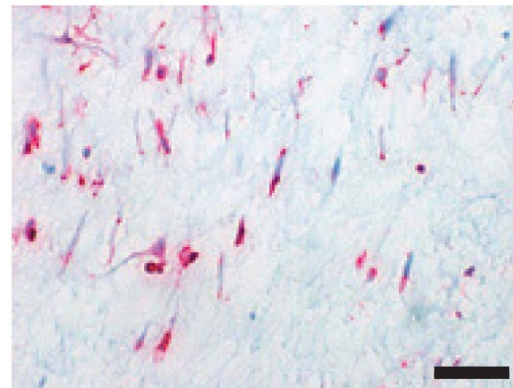
Patients without MNPs



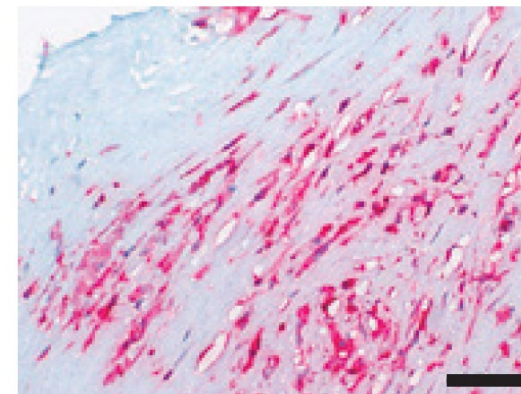
Amount of **Collagen** in Plaque



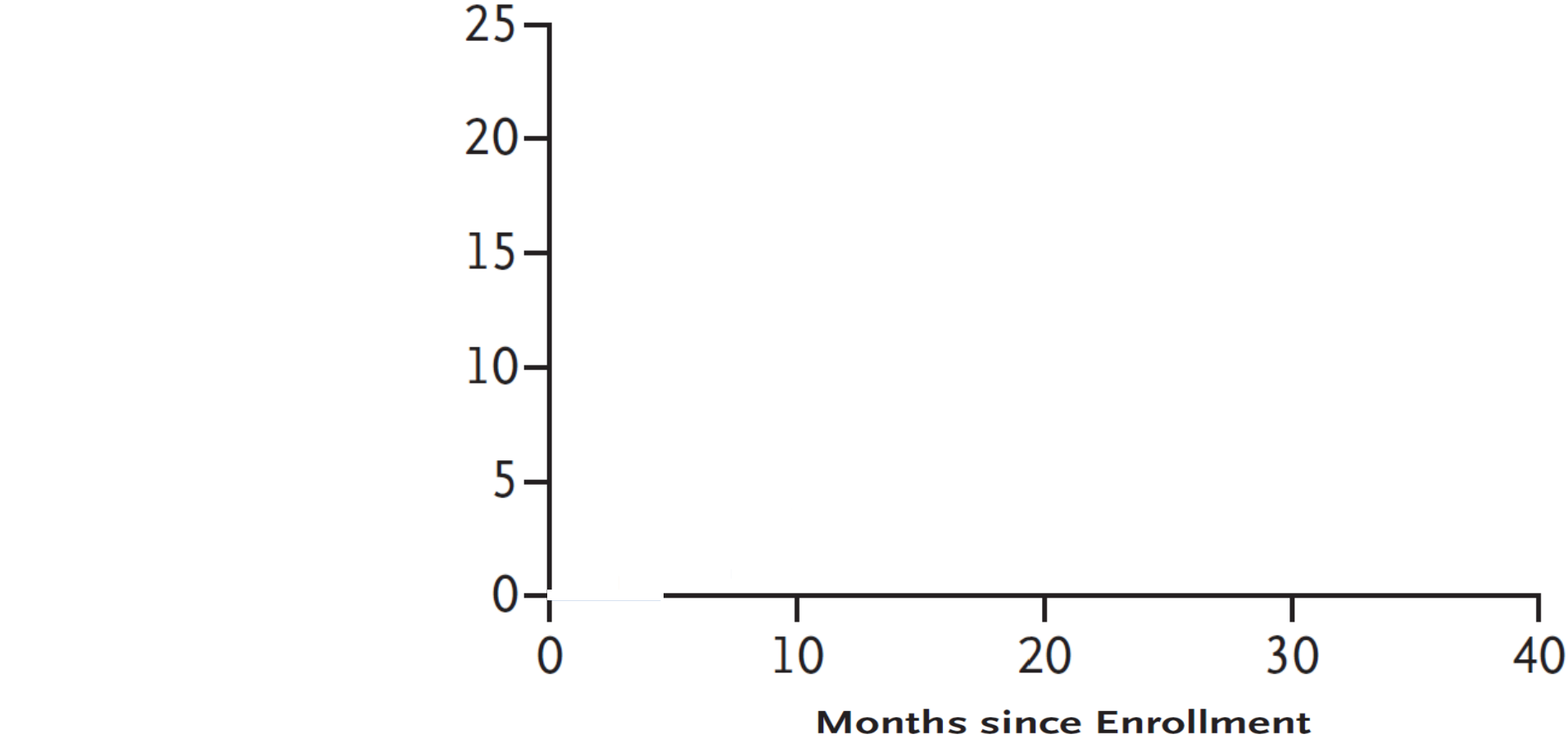
Patients with MNPs



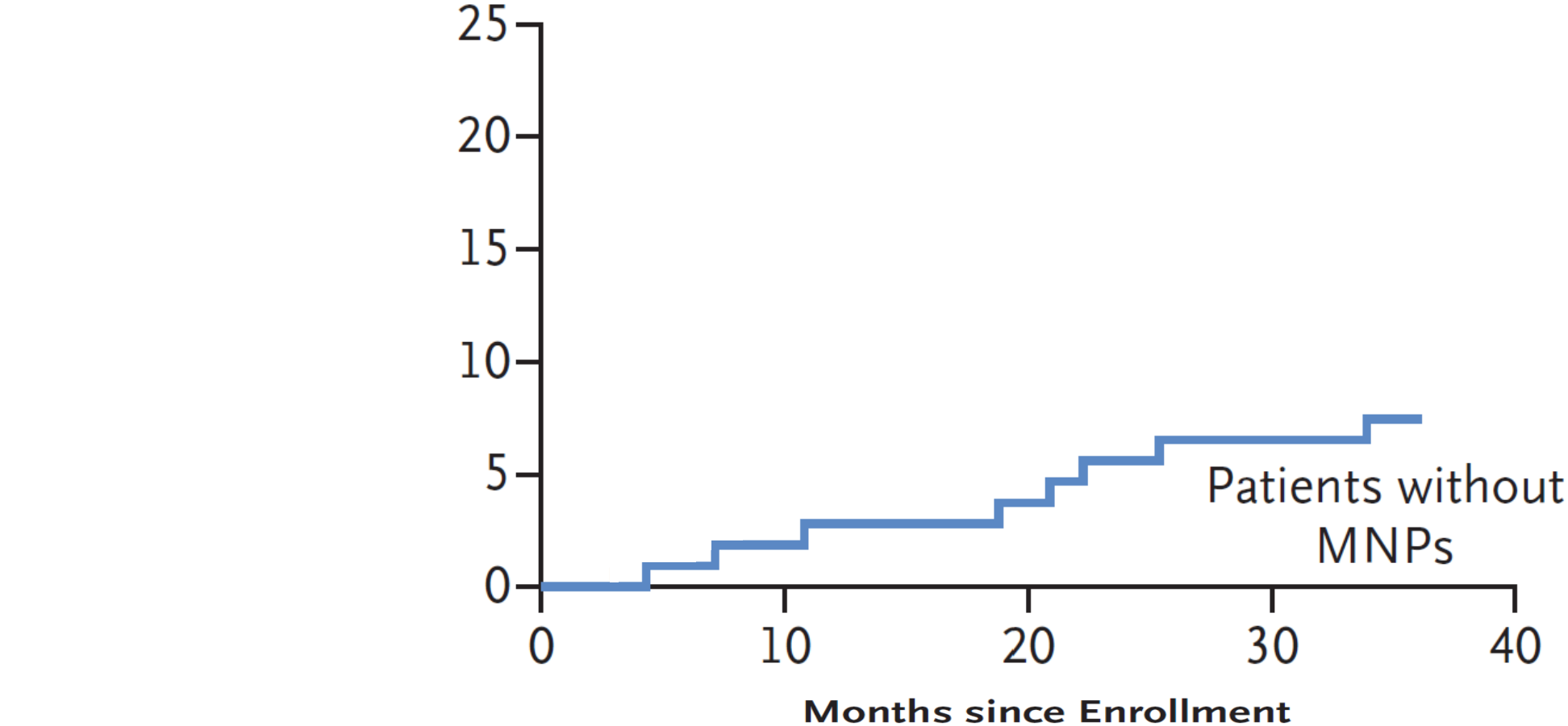
Patients without MNPs



Heart Attack, Stroke, CV Death



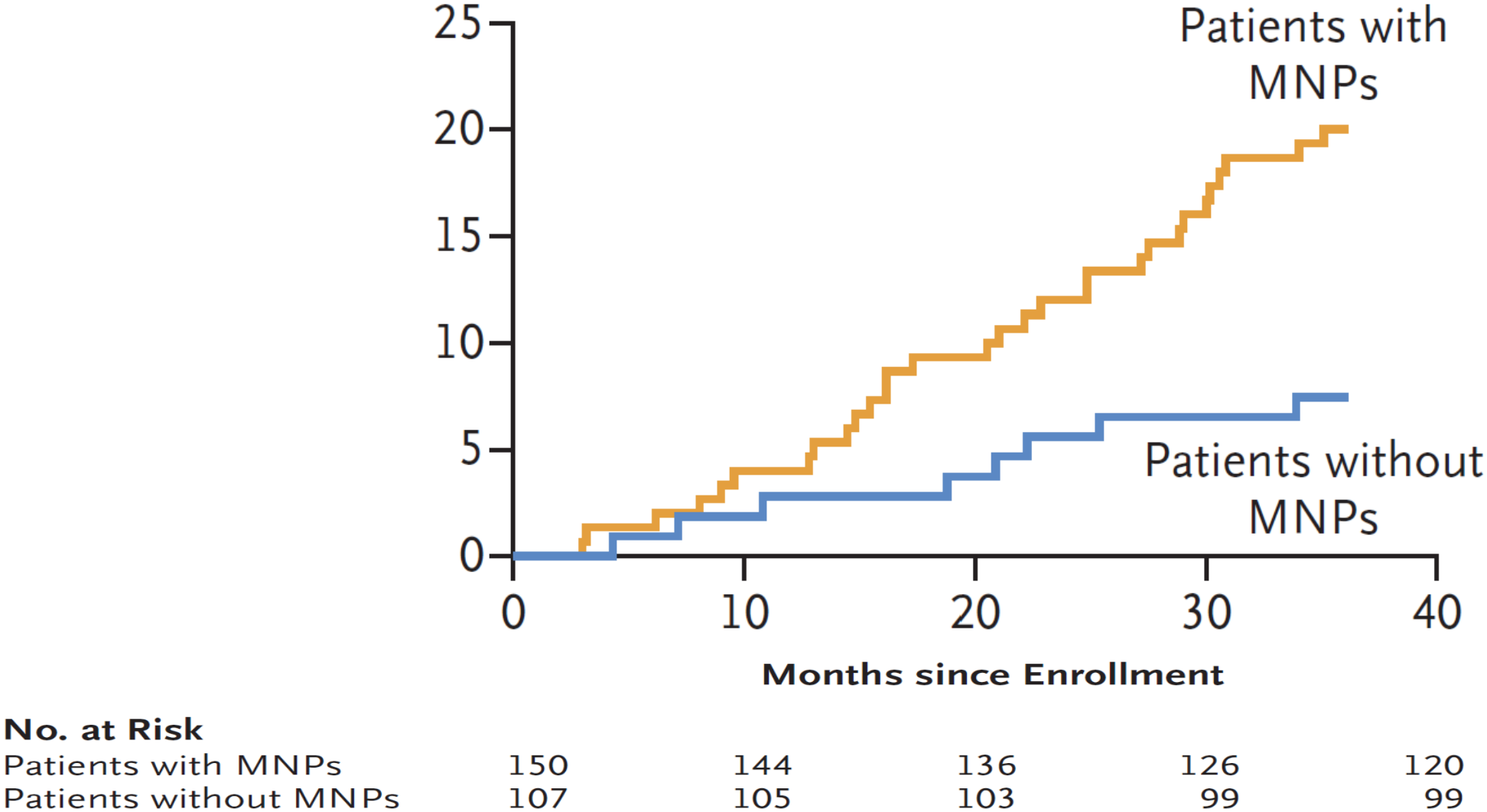
Heart Attack, Stroke, CV Death



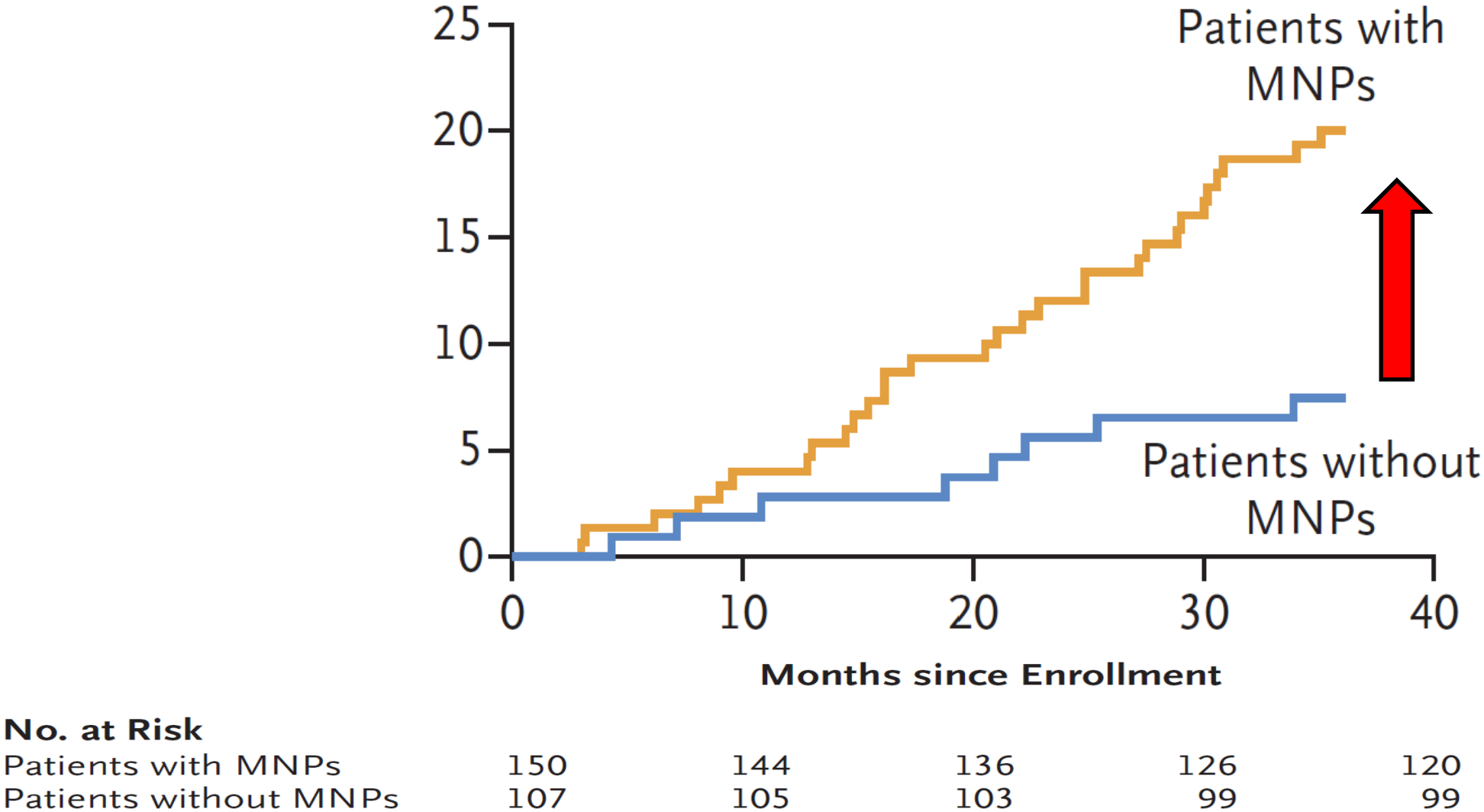
No. at Risk

Patients with MNPs	150	144	136	126	120
Patients without MNPs	107	105	103	99	99

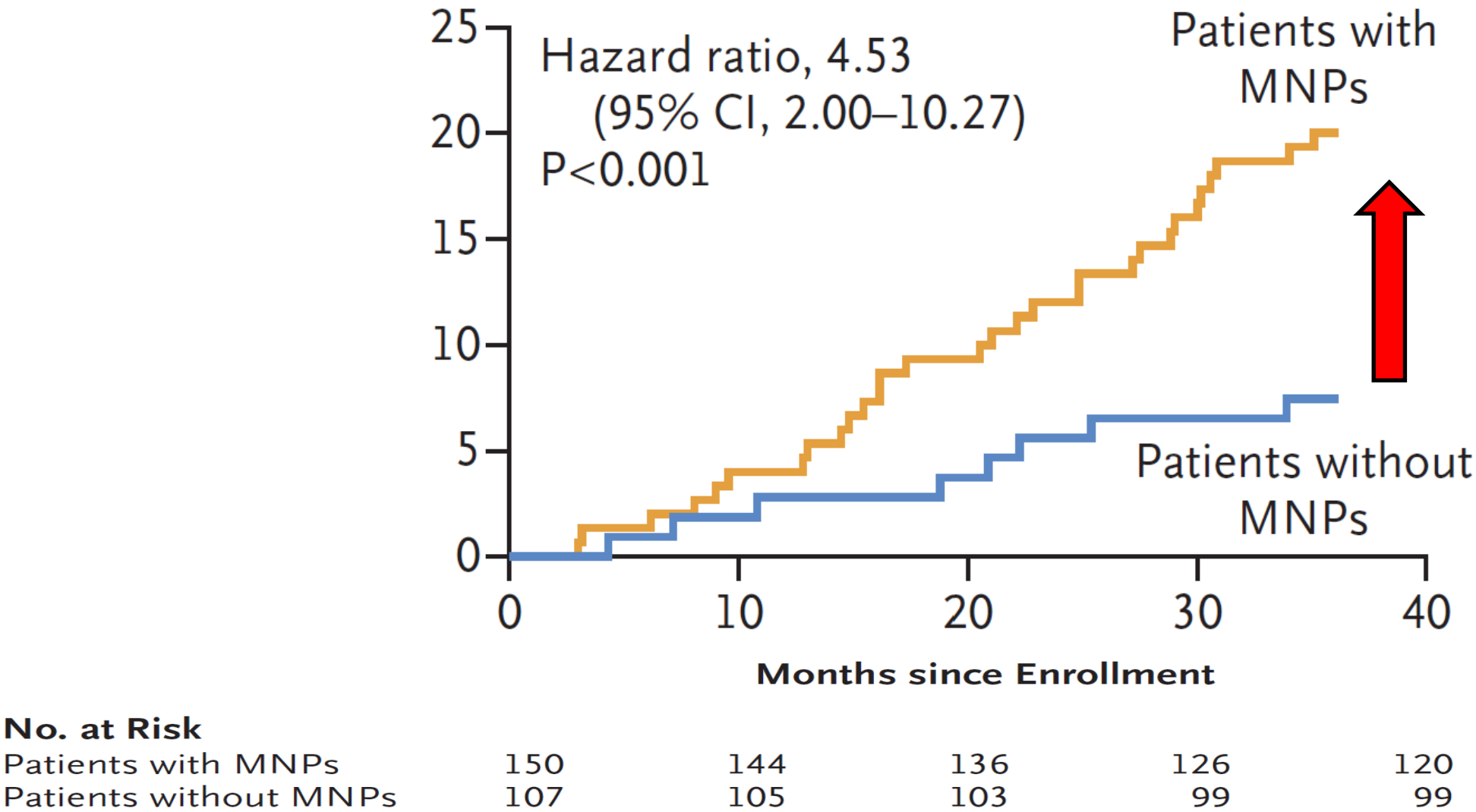
Heart Attack, Stroke, CV Death



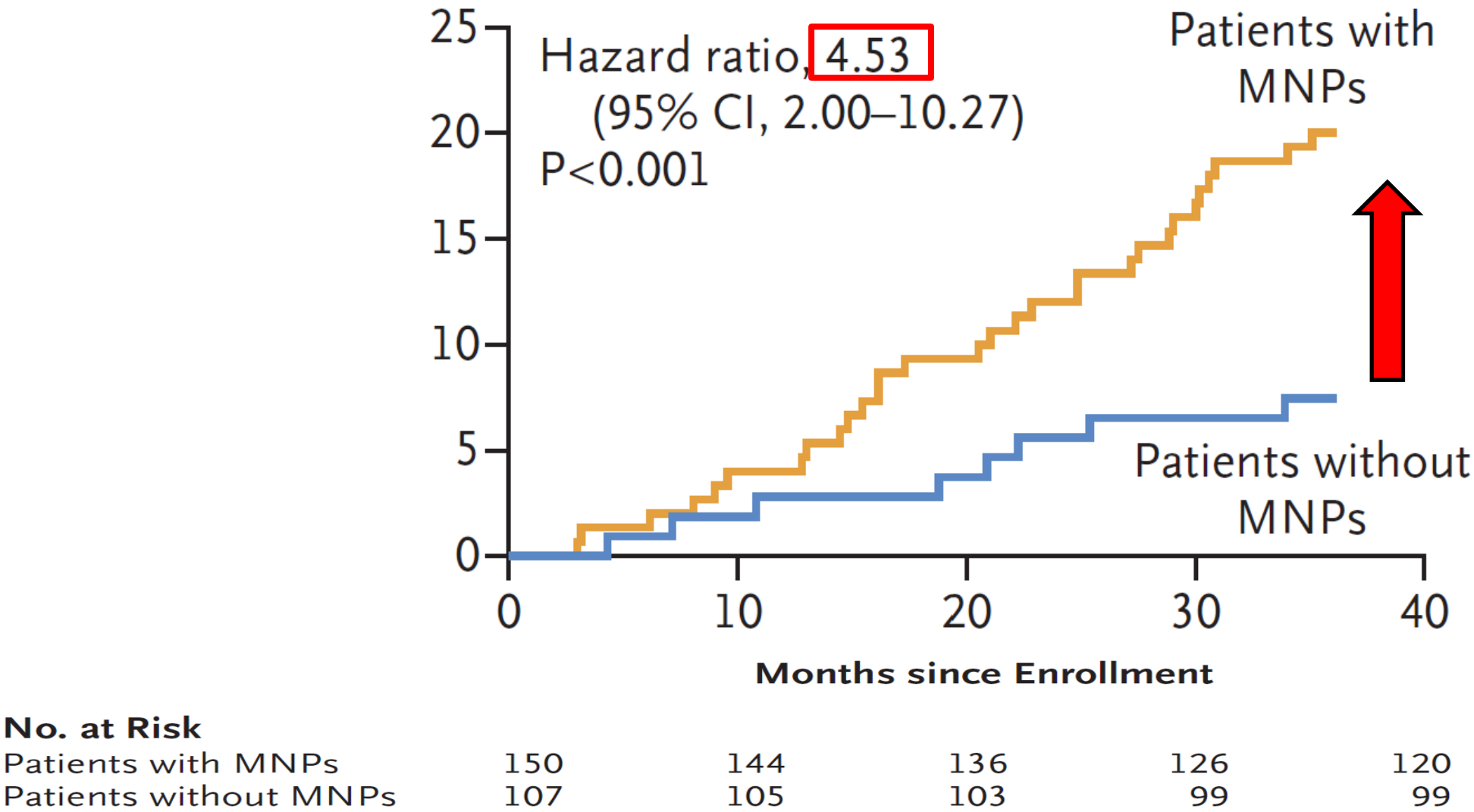
Heart Attack, Stroke, CV Death



Heart Attack, Stroke, CV Death

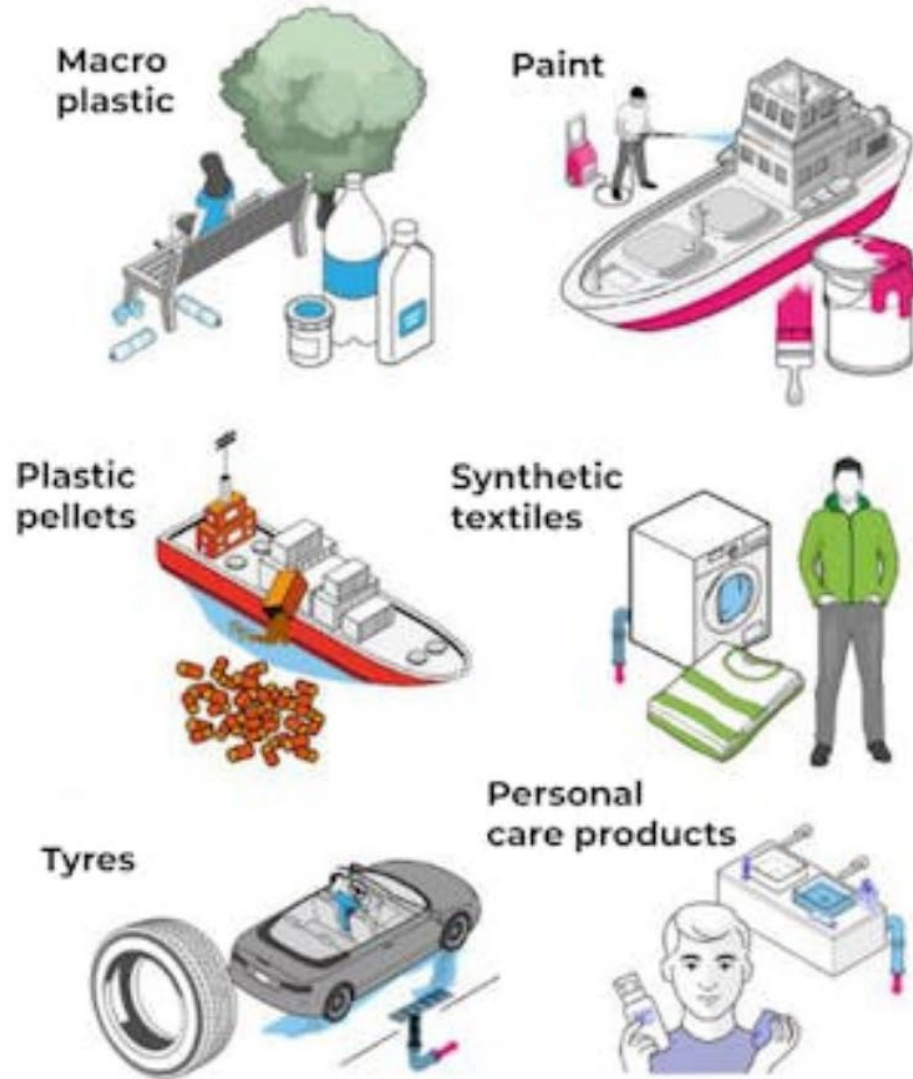


Heart Attack, Stroke, CV Death

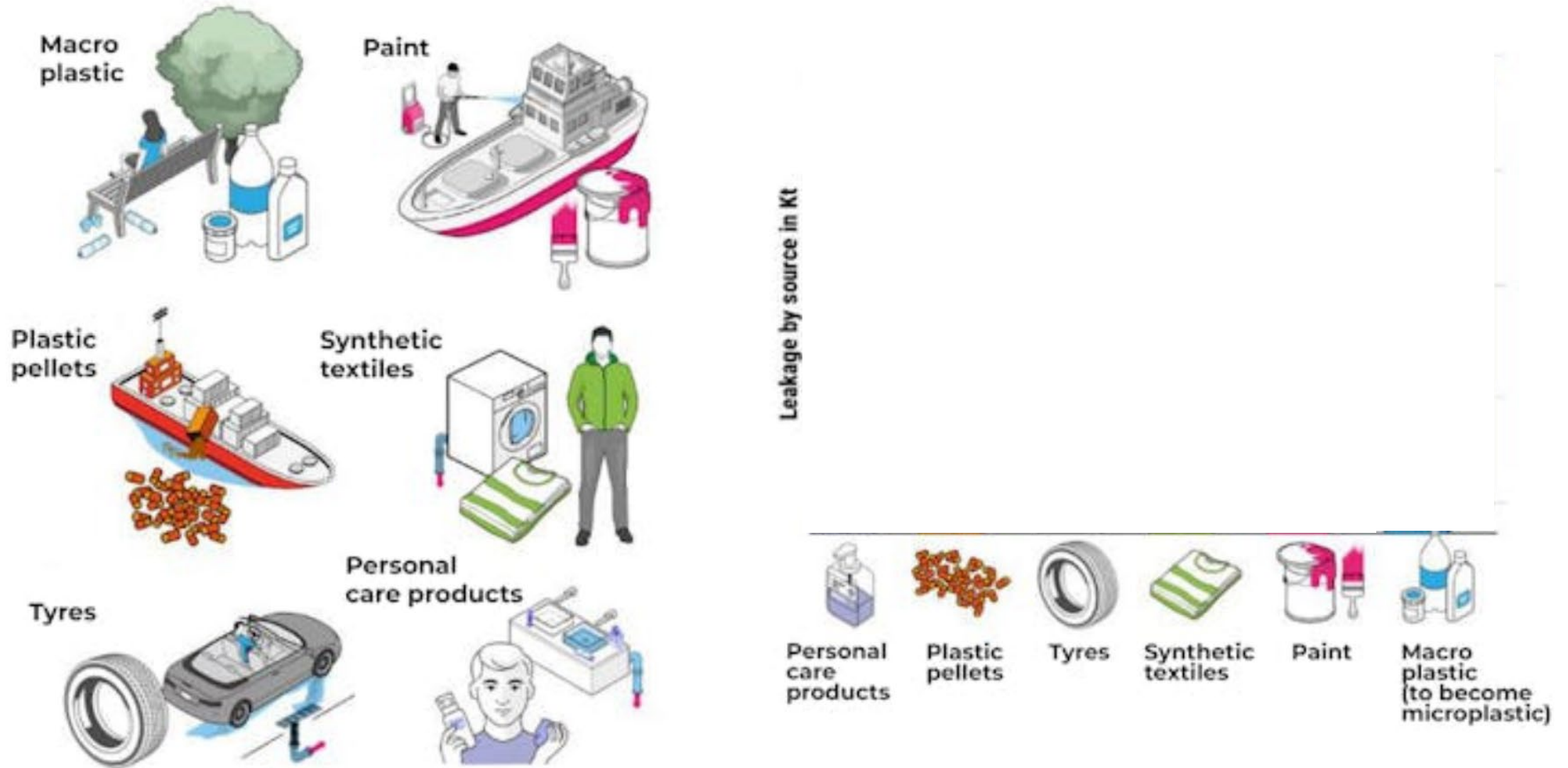


Where do microplastics come from?

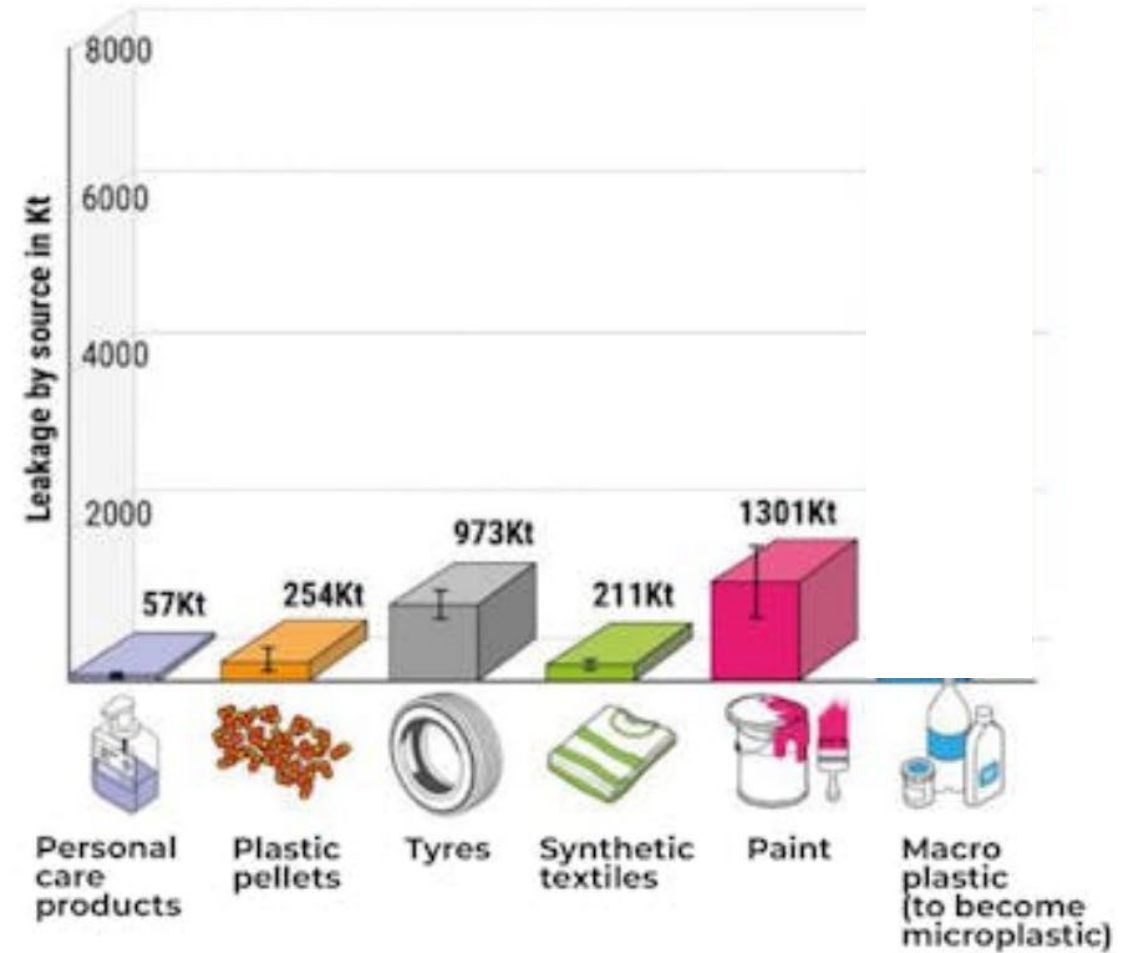
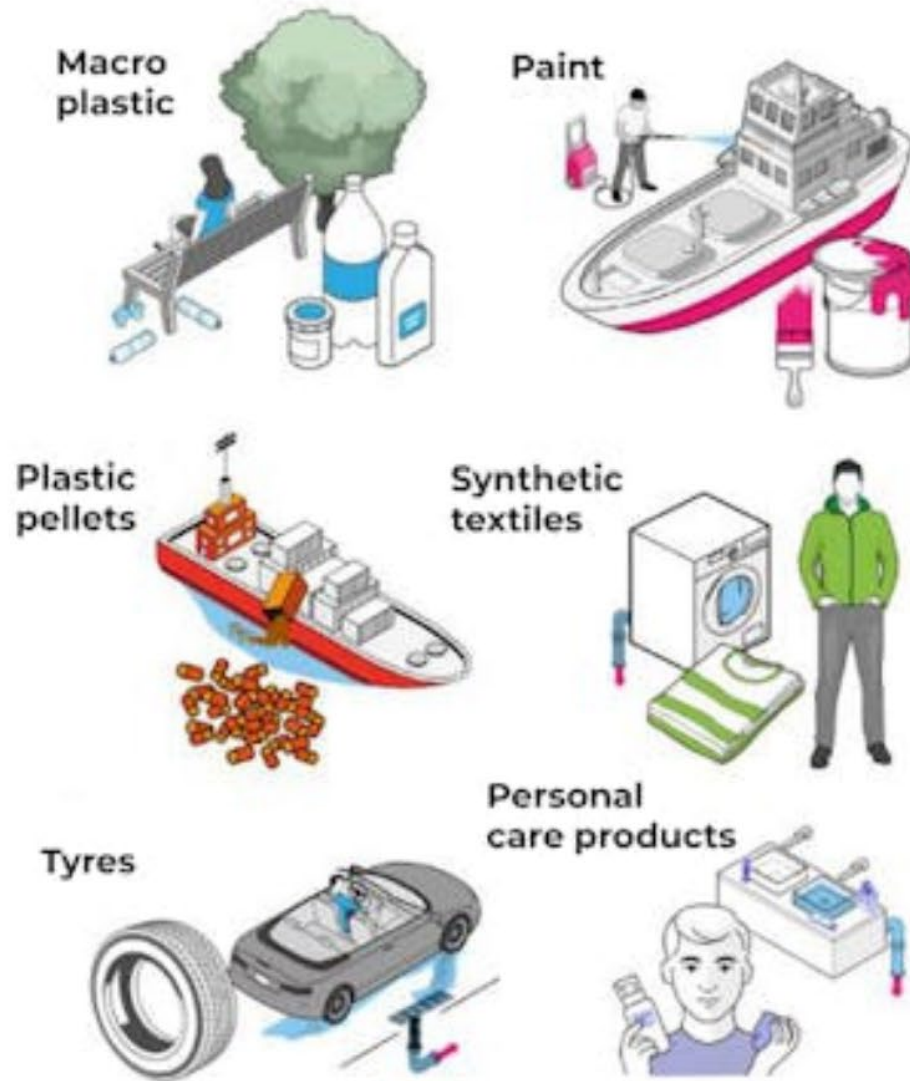
Where do microplastics come from?



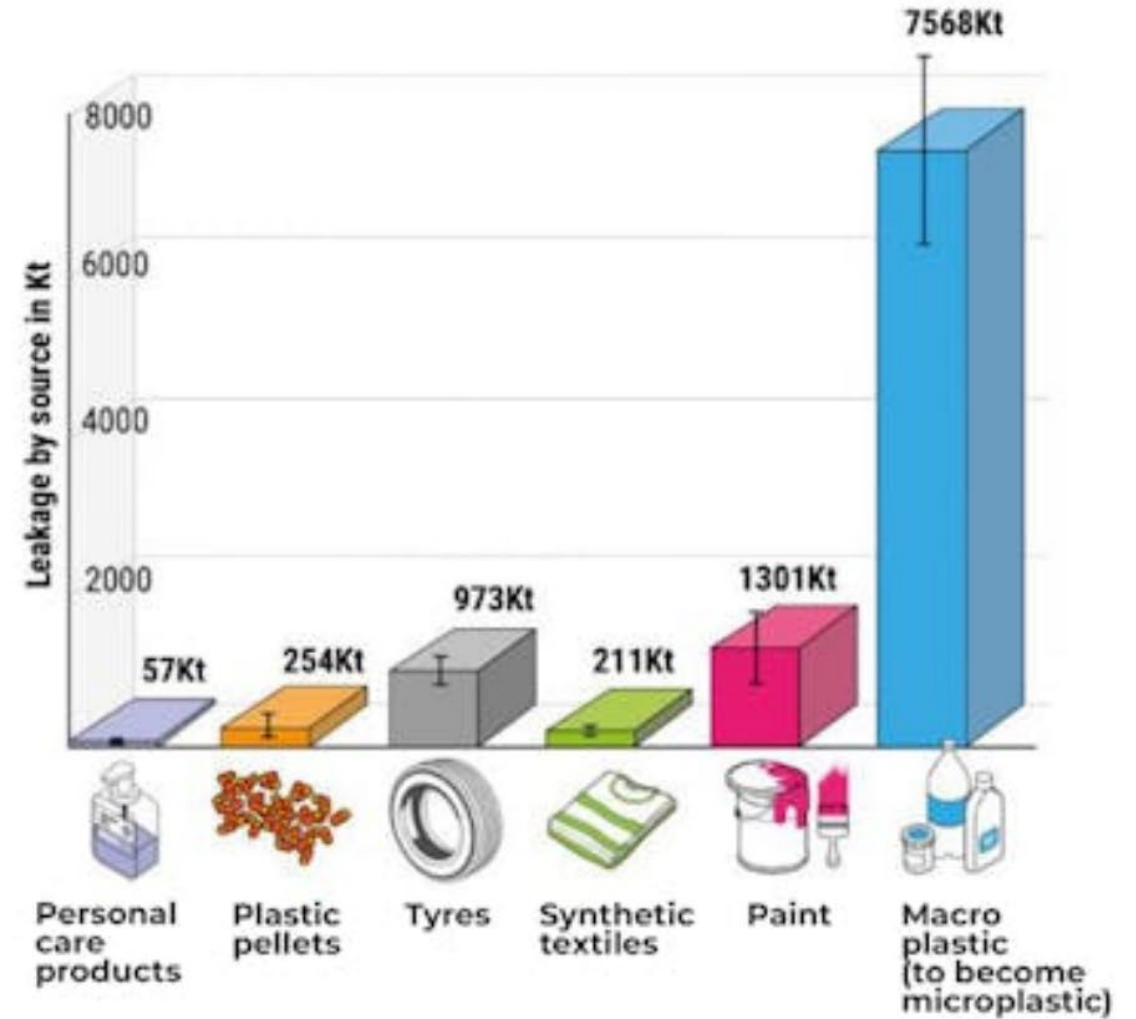
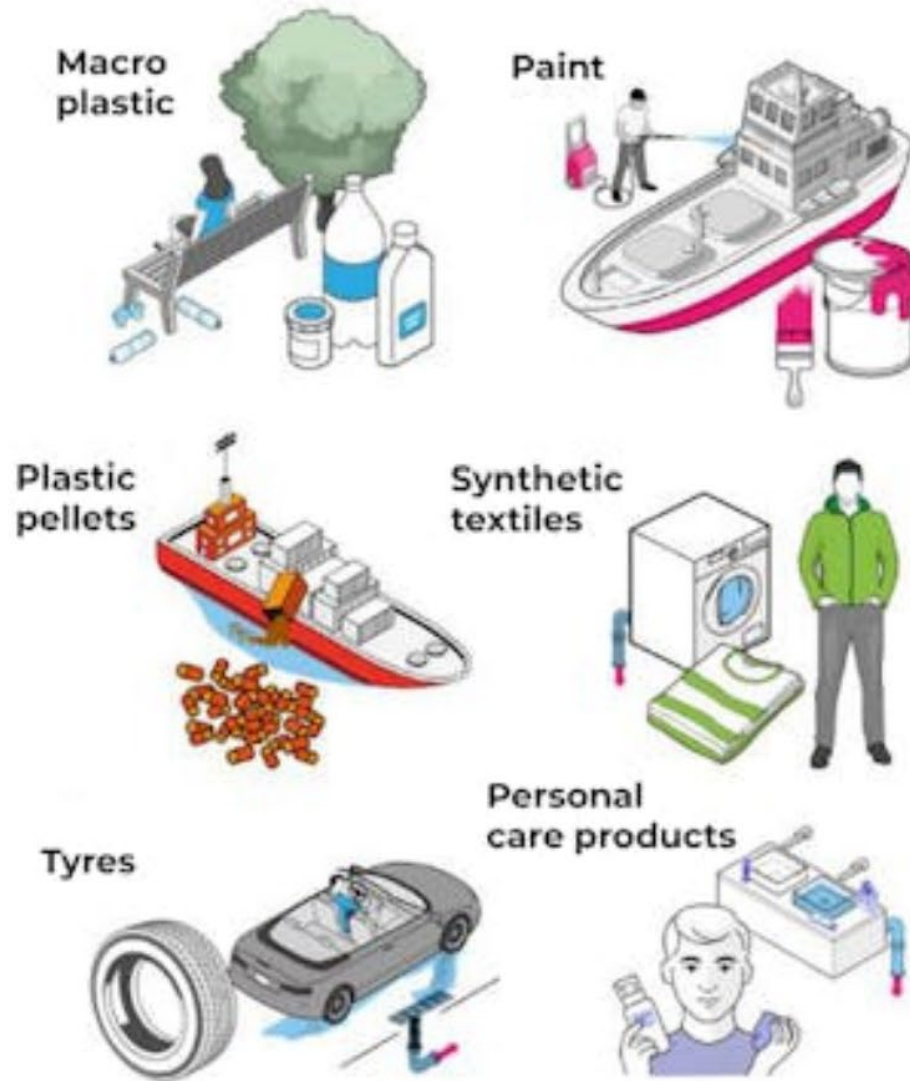
Where do microplastics come from?



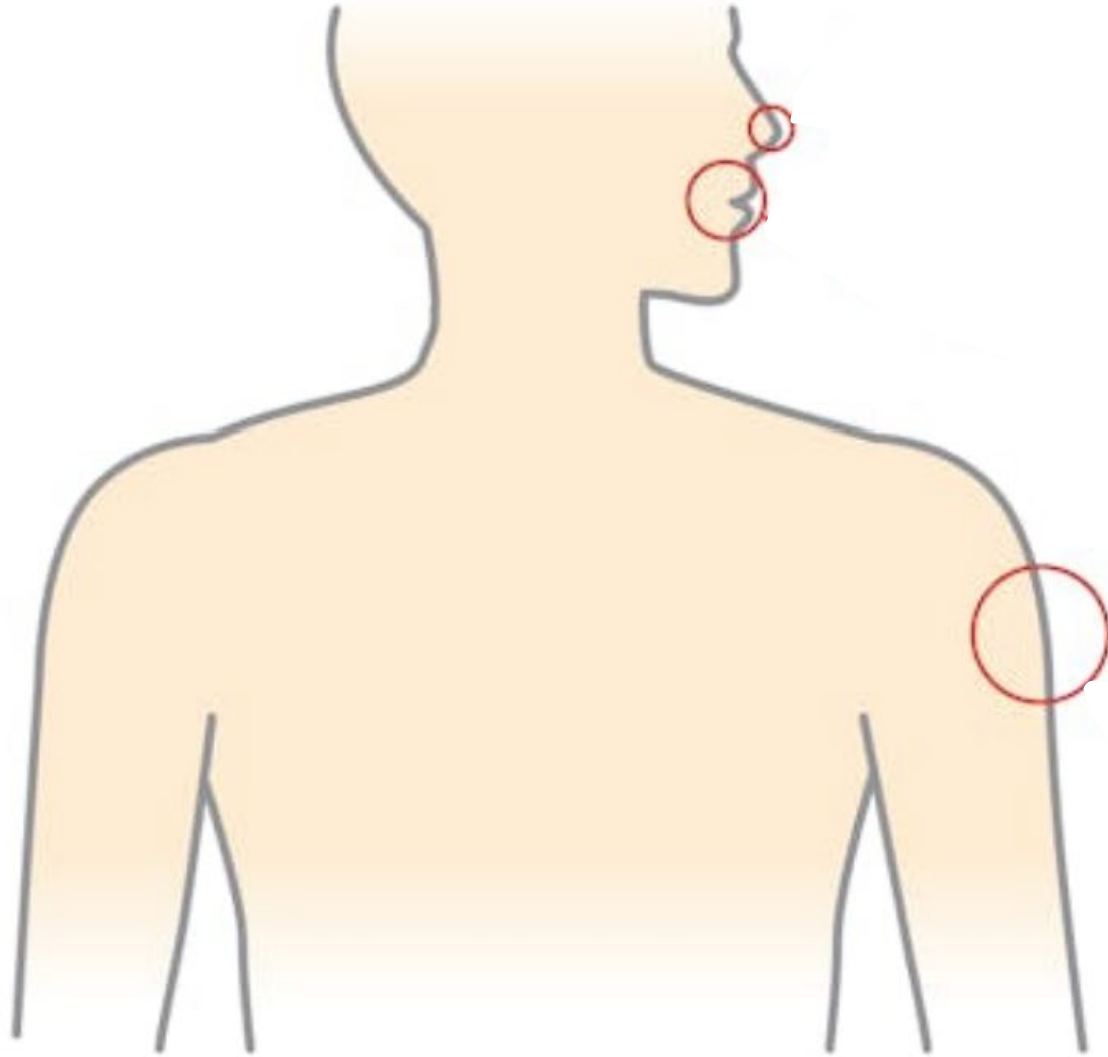
Where do microplastics come from?



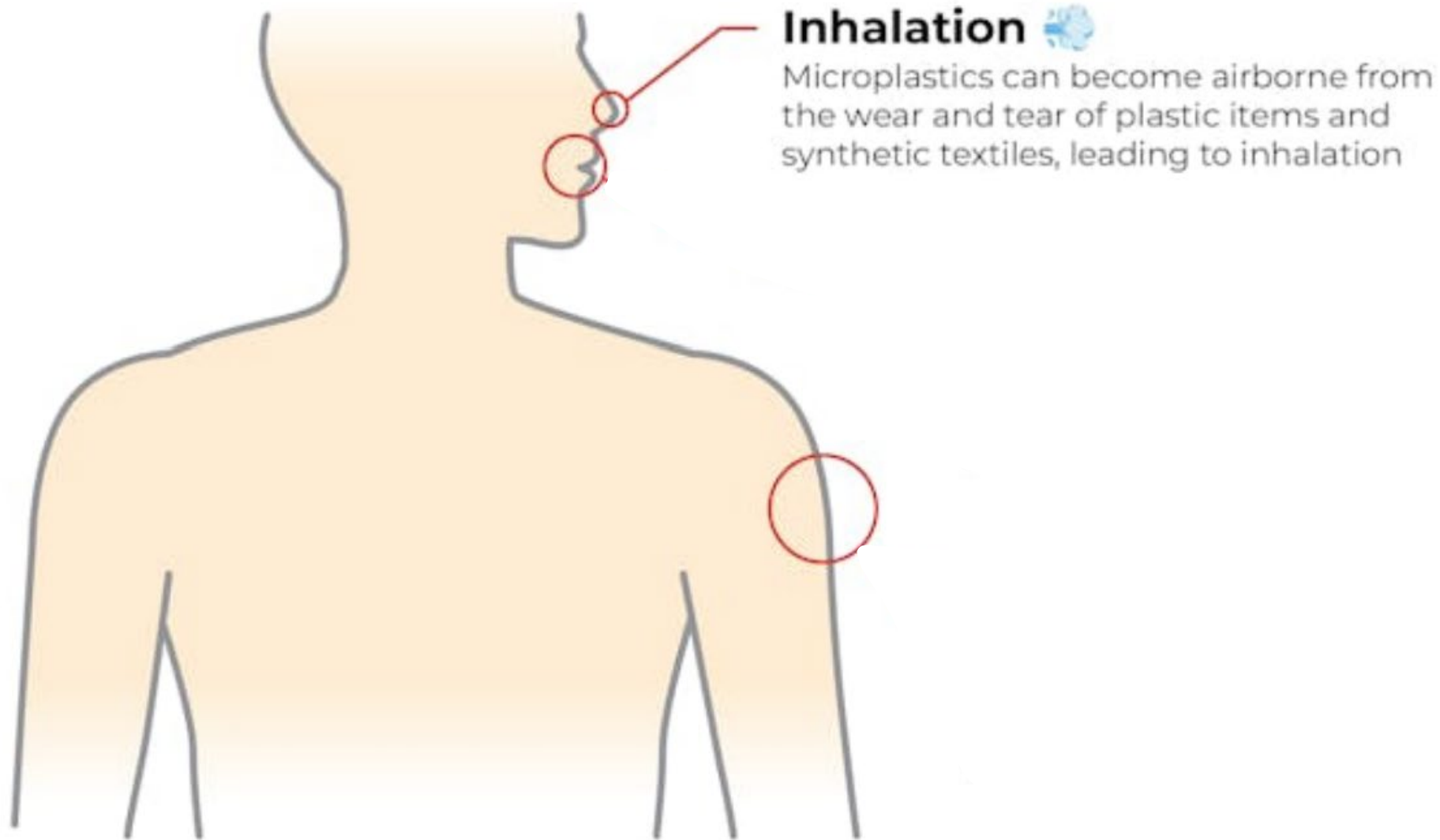
Where do microplastics come from?



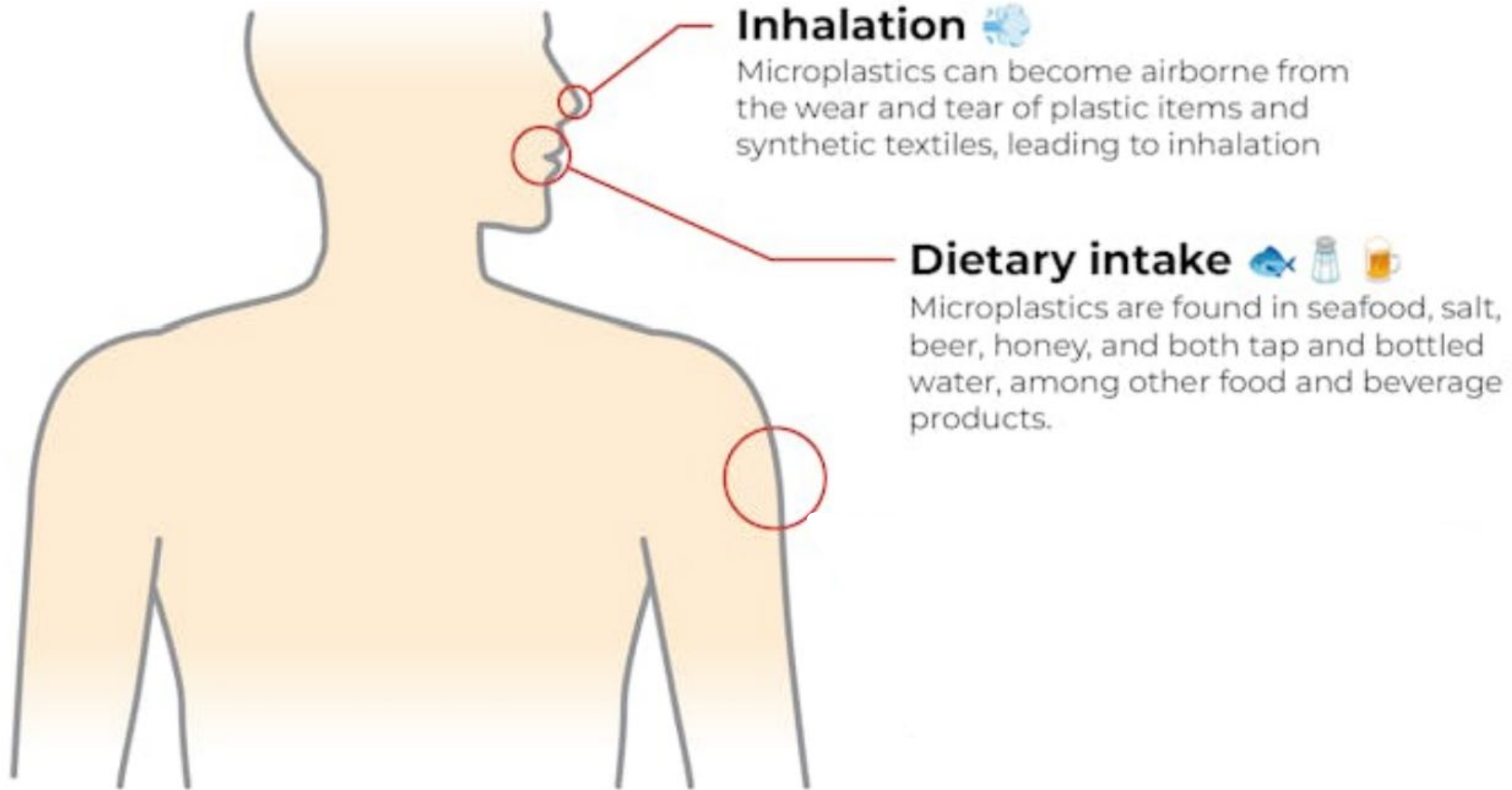
How microplastics enter the body



How microplastics enter the body



How microplastics enter the body

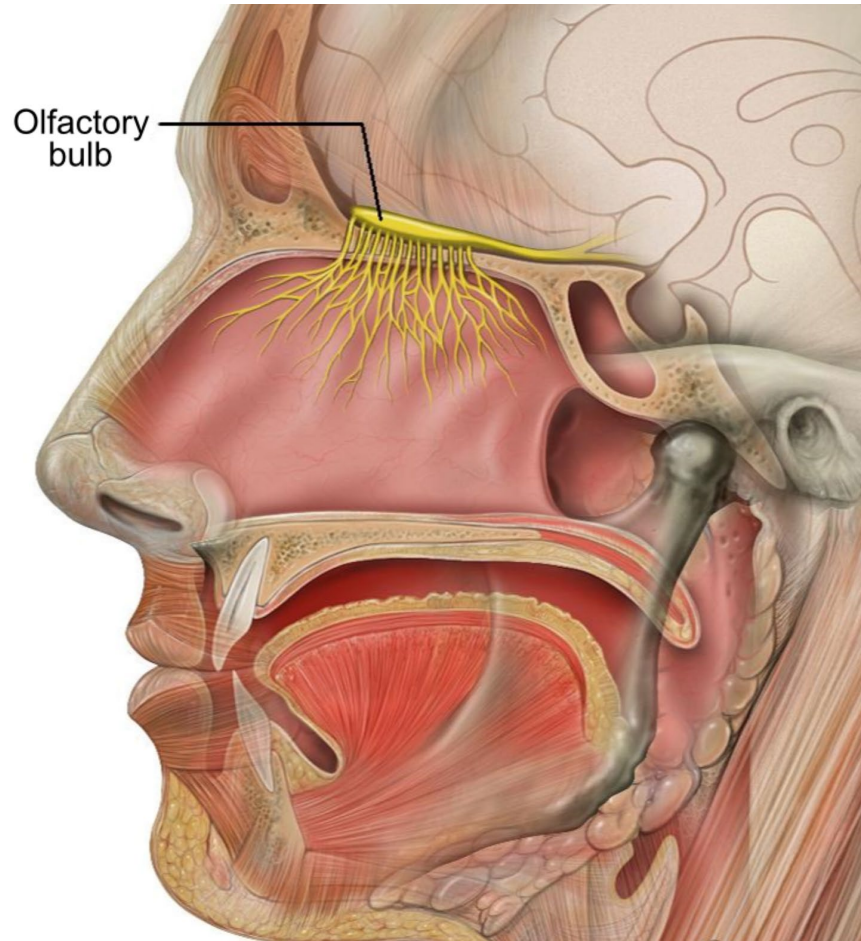


How microplastics enter the body

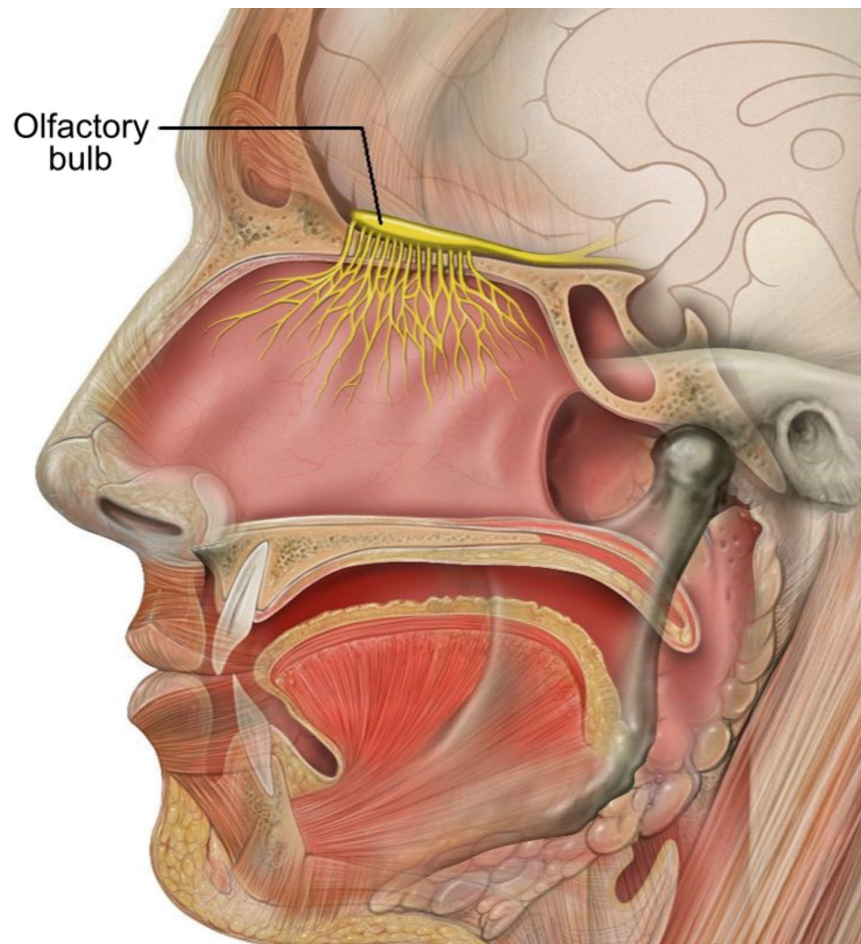


Microplastics in the Olfactory Bulb of the Human Brain

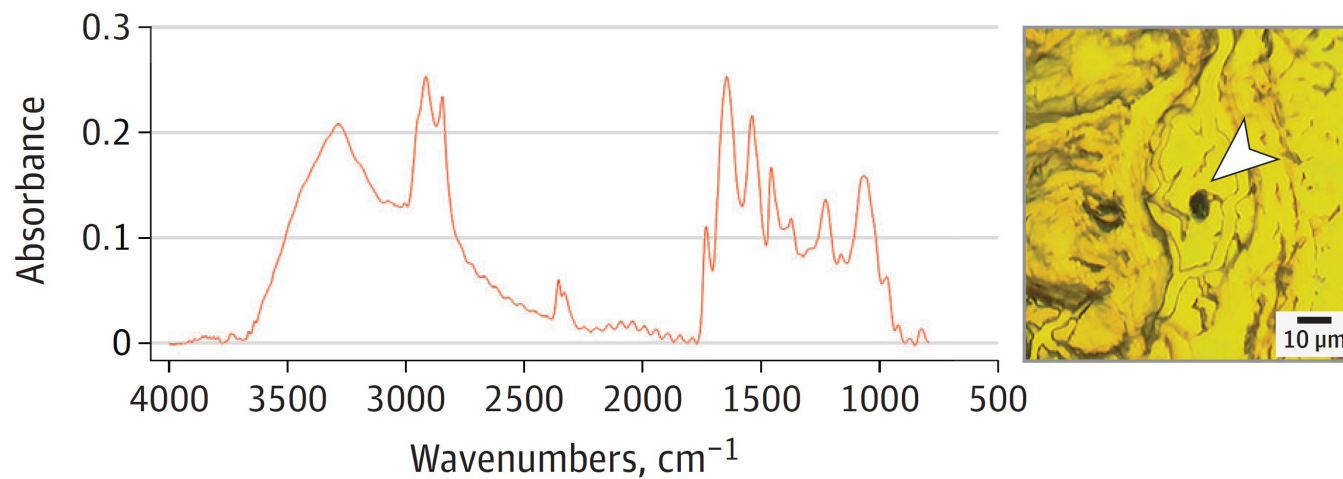
Microplastics in the Olfactory Bulb of the Human Brain



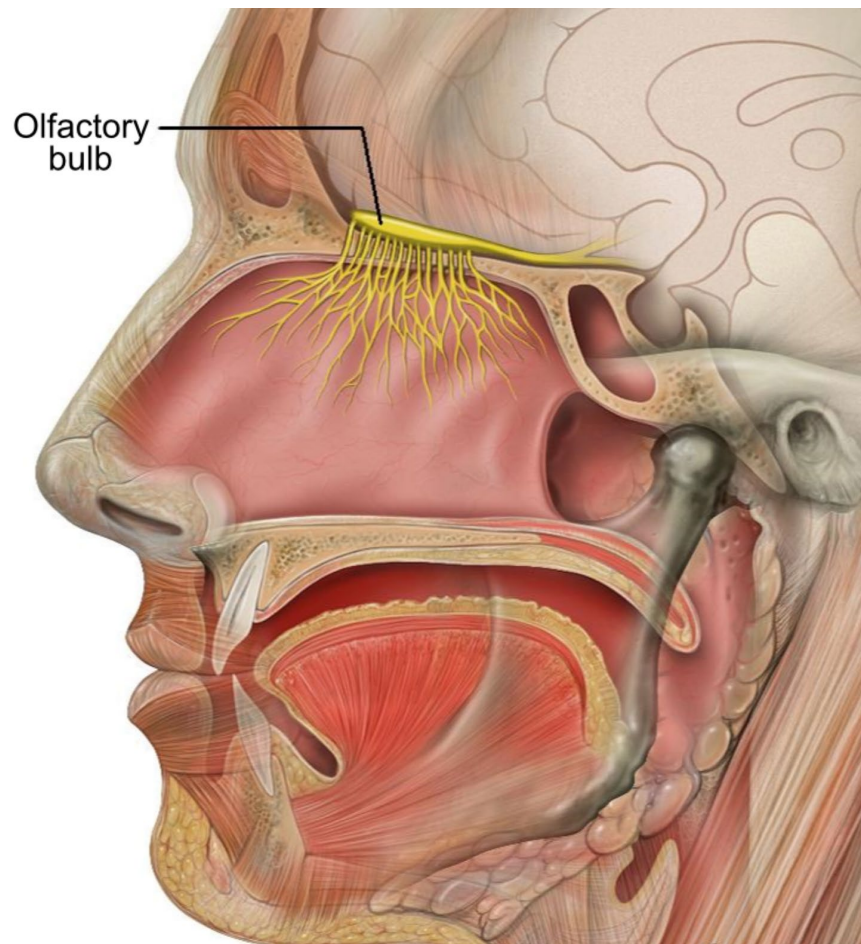
Microplastics in the Olfactory Bulb of the Human Brain



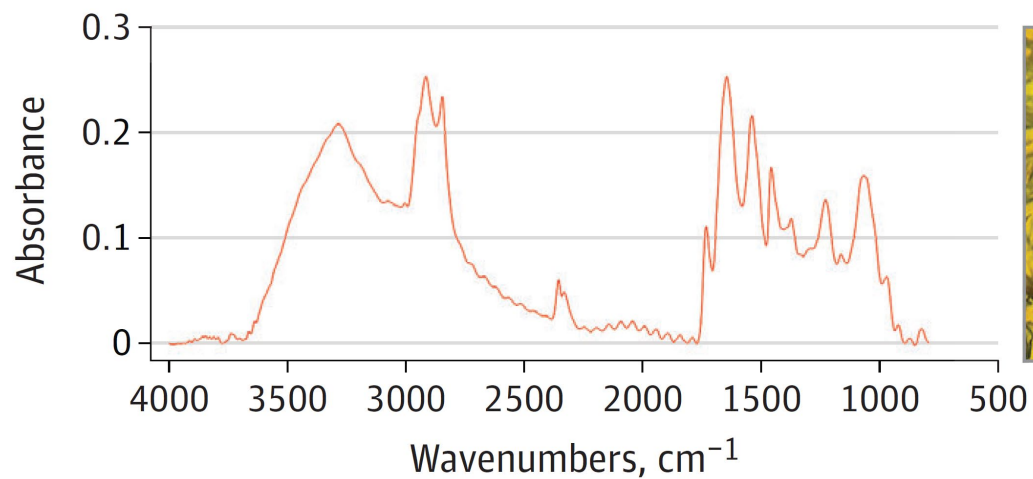
A Polypropylene HQI value of 80.1



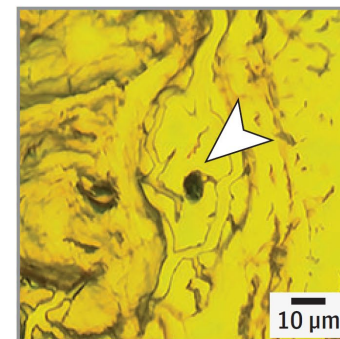
Microplastics in the Olfactory Bulb of the Human Brain



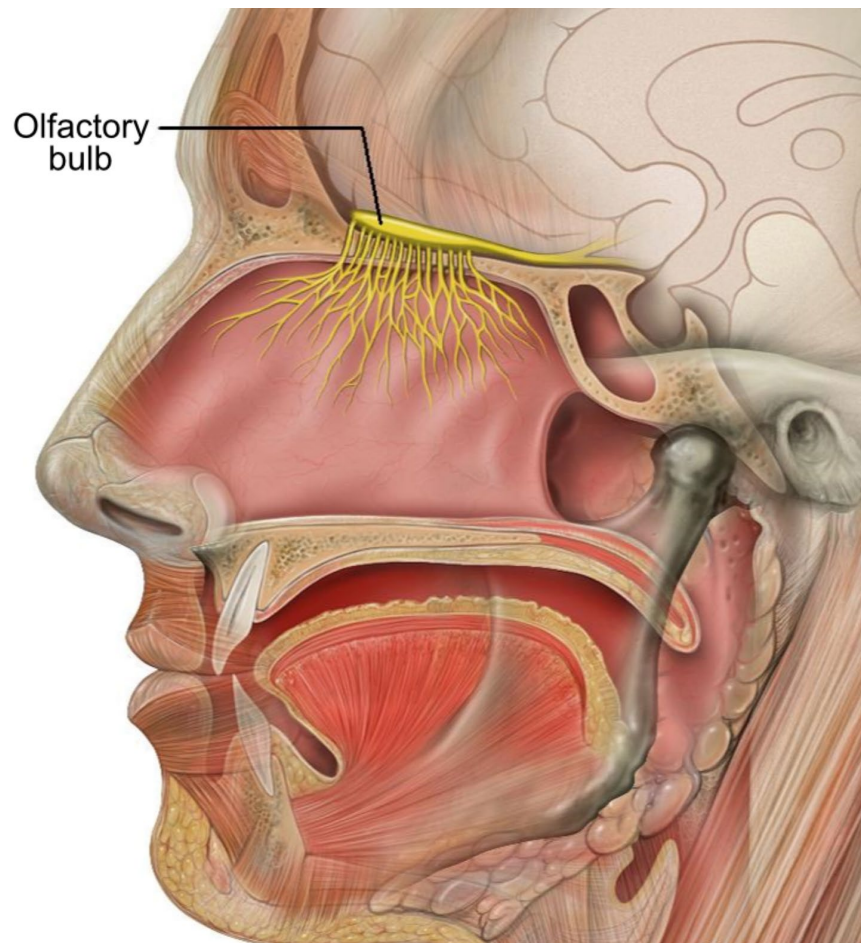
A Polypropylene HQI value of 80.1



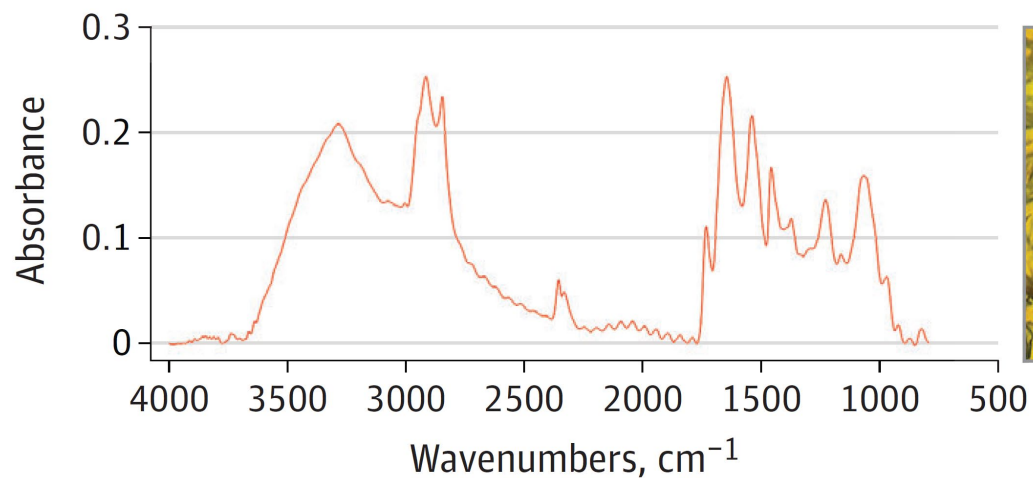
PolyPropylene



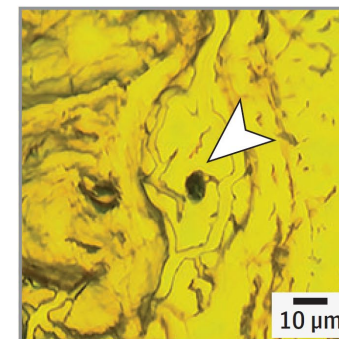
Microplastics in the Olfactory Bulb of the Human Brain



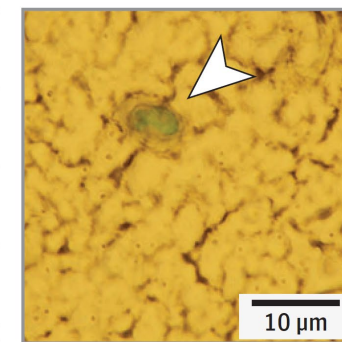
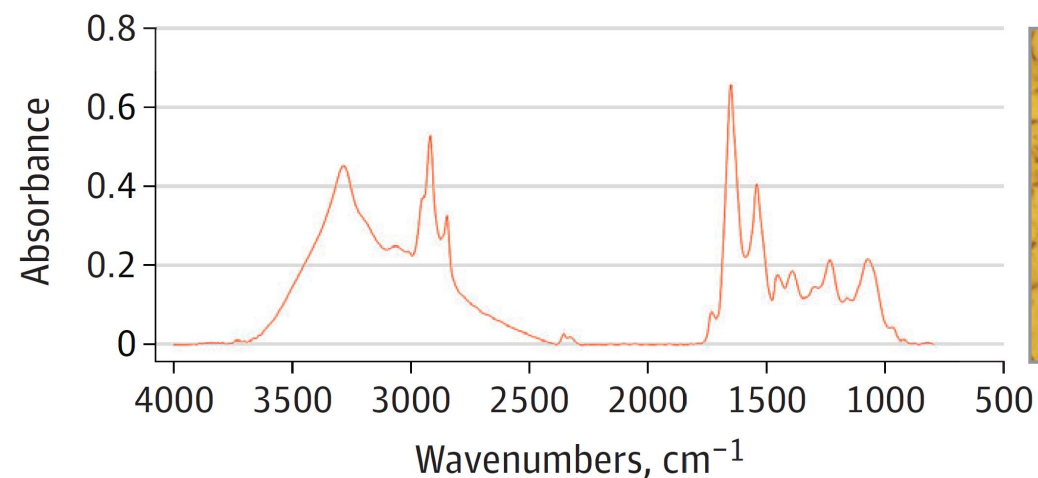
A Polypropylene HQI value of 80.1



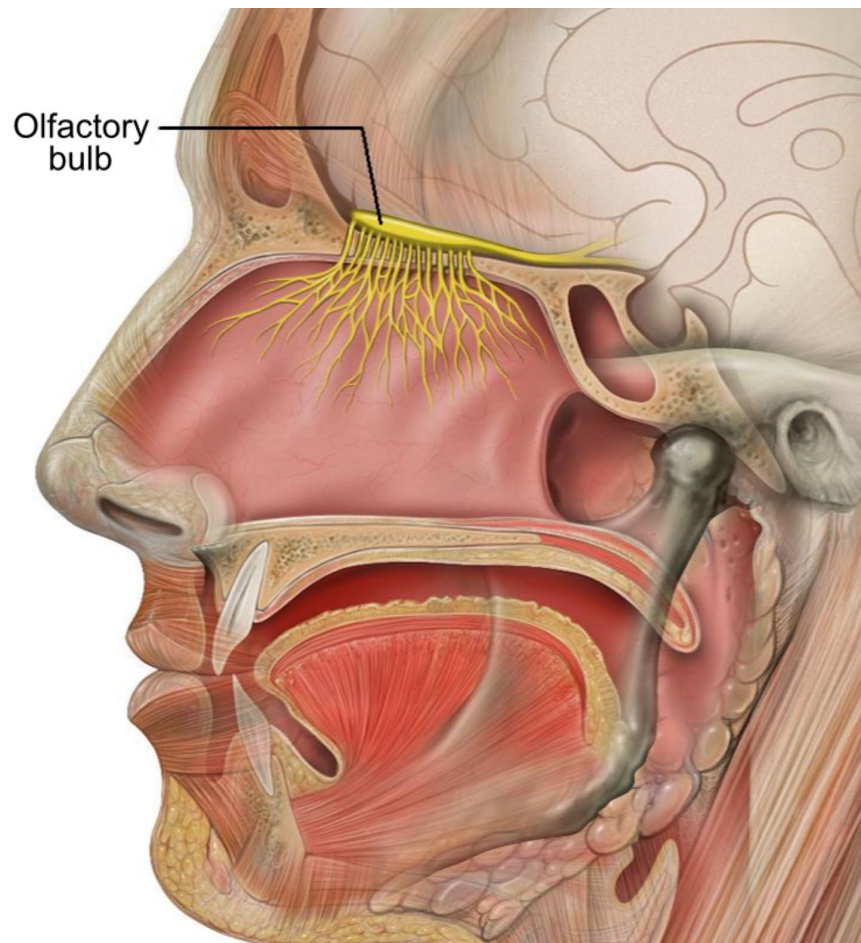
PolyPropylene



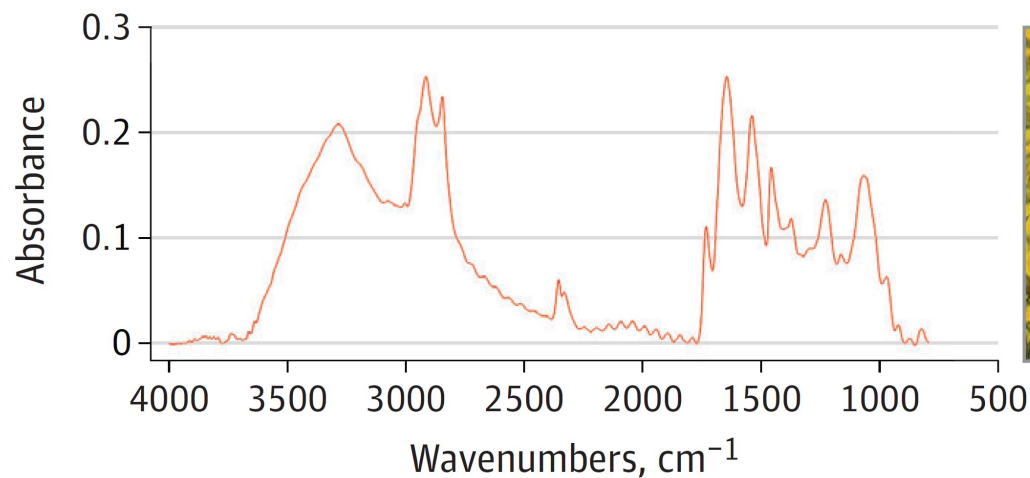
B Nylon HQI value of 79.2



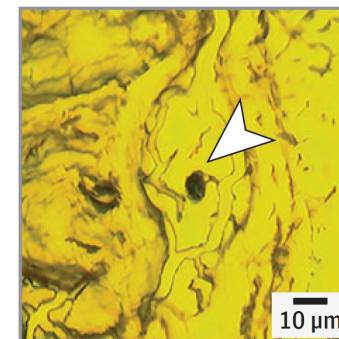
Microplastics in the Olfactory Bulb of the Human Brain



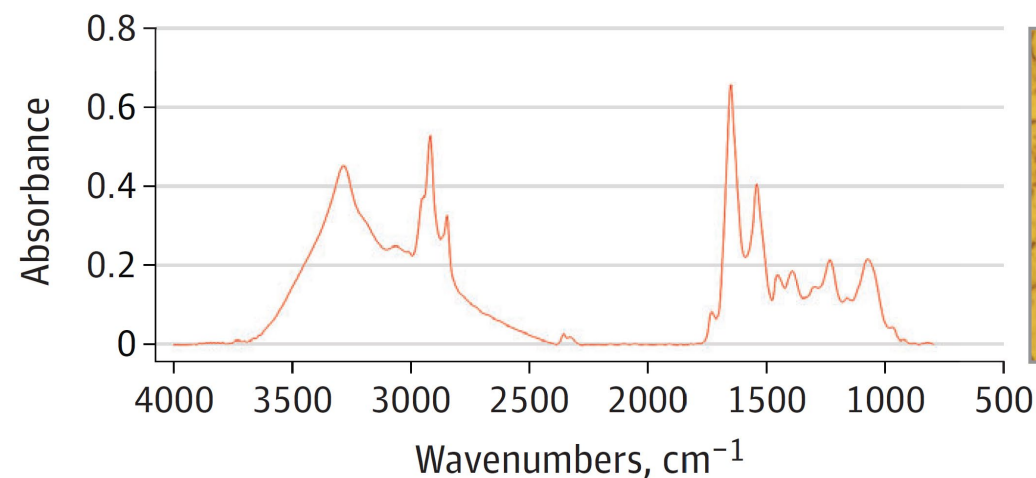
A Polypropylene HQI value of 80.1



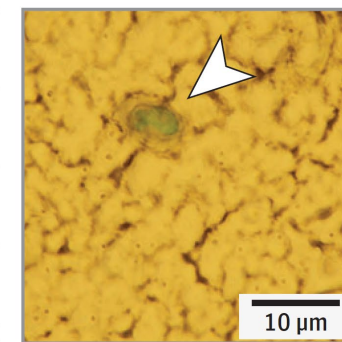
PolyPropylene



B Nylon HQI value of 79.2

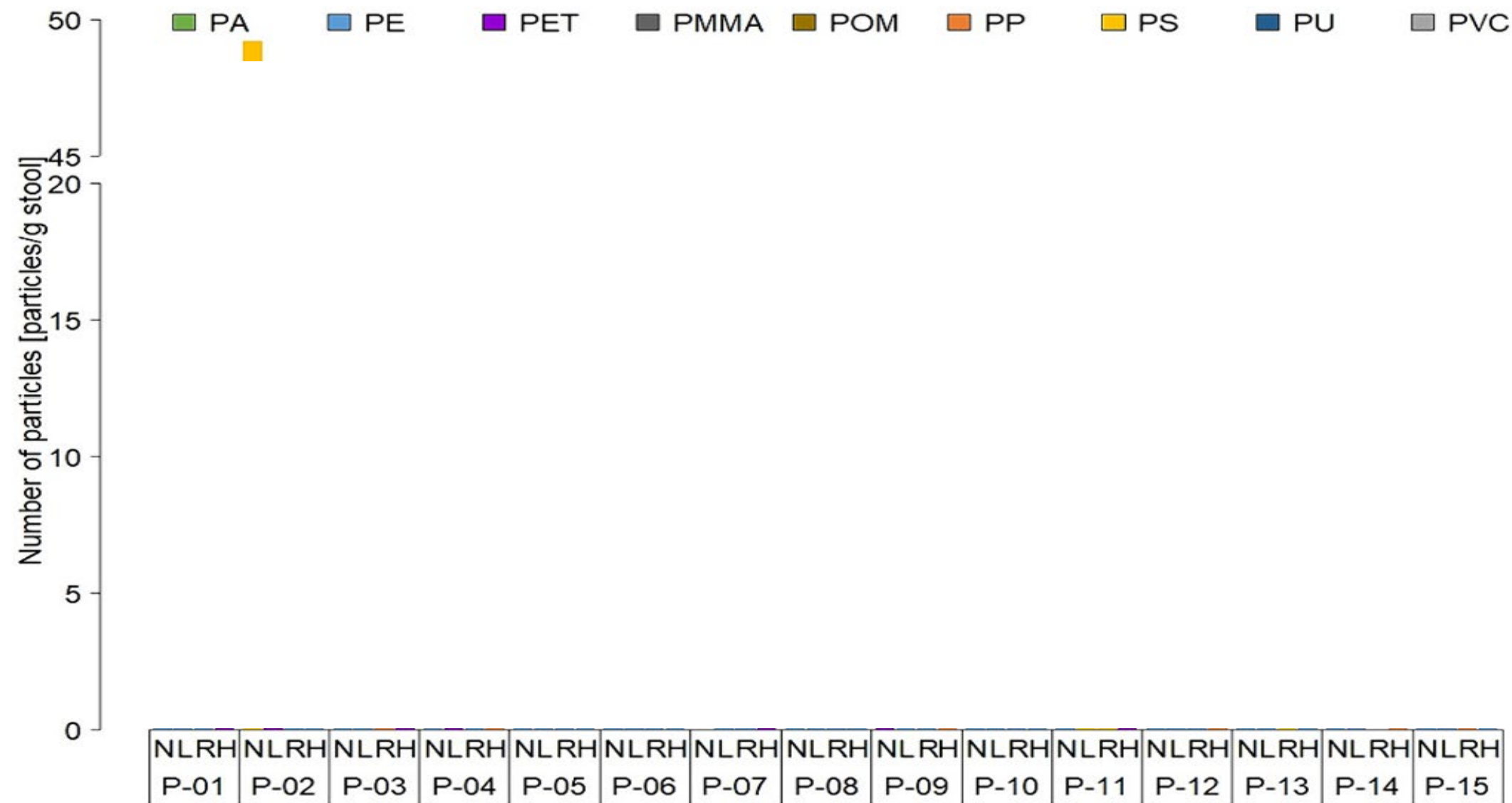


Nylon (PolyAmide)

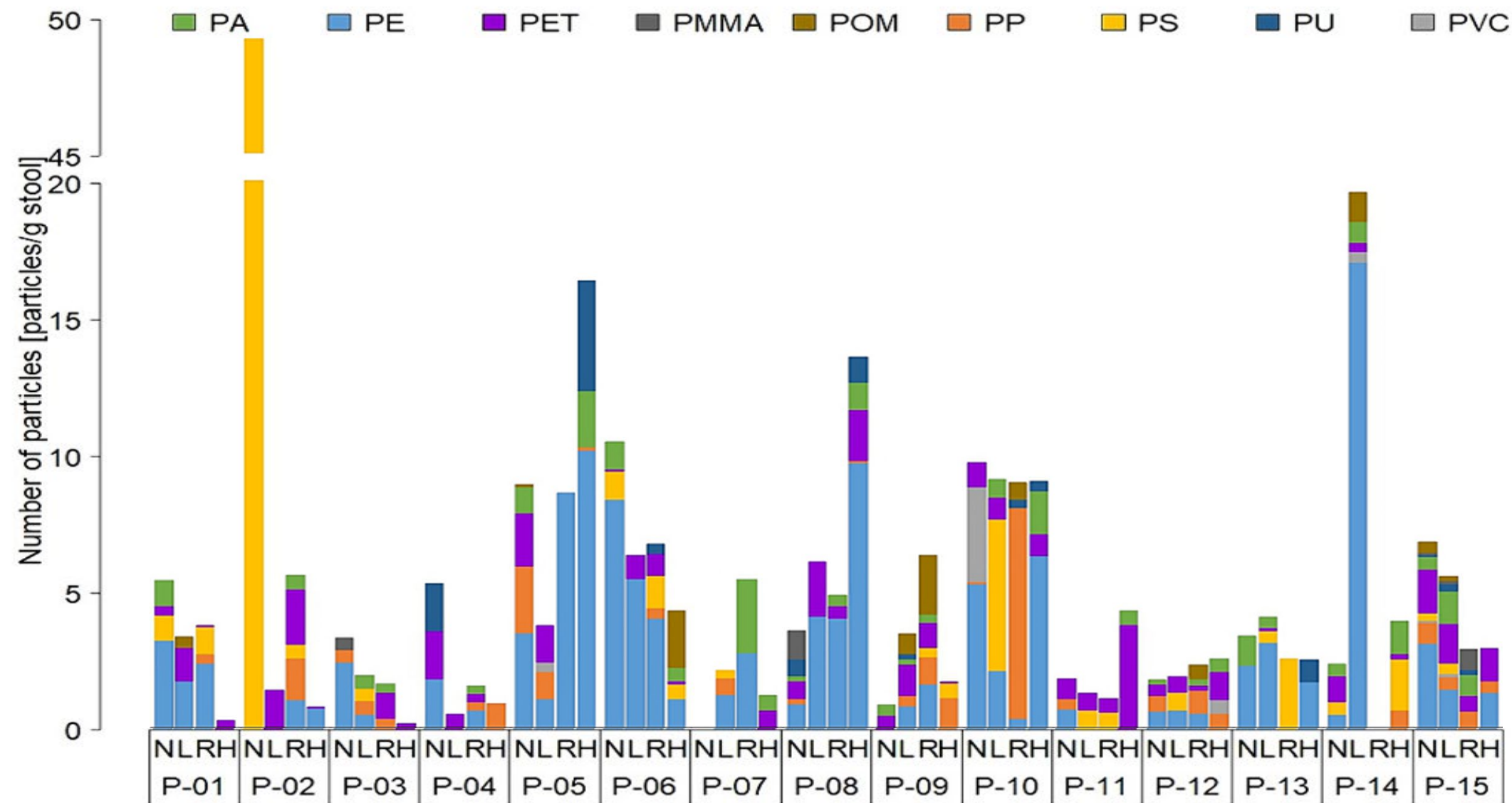




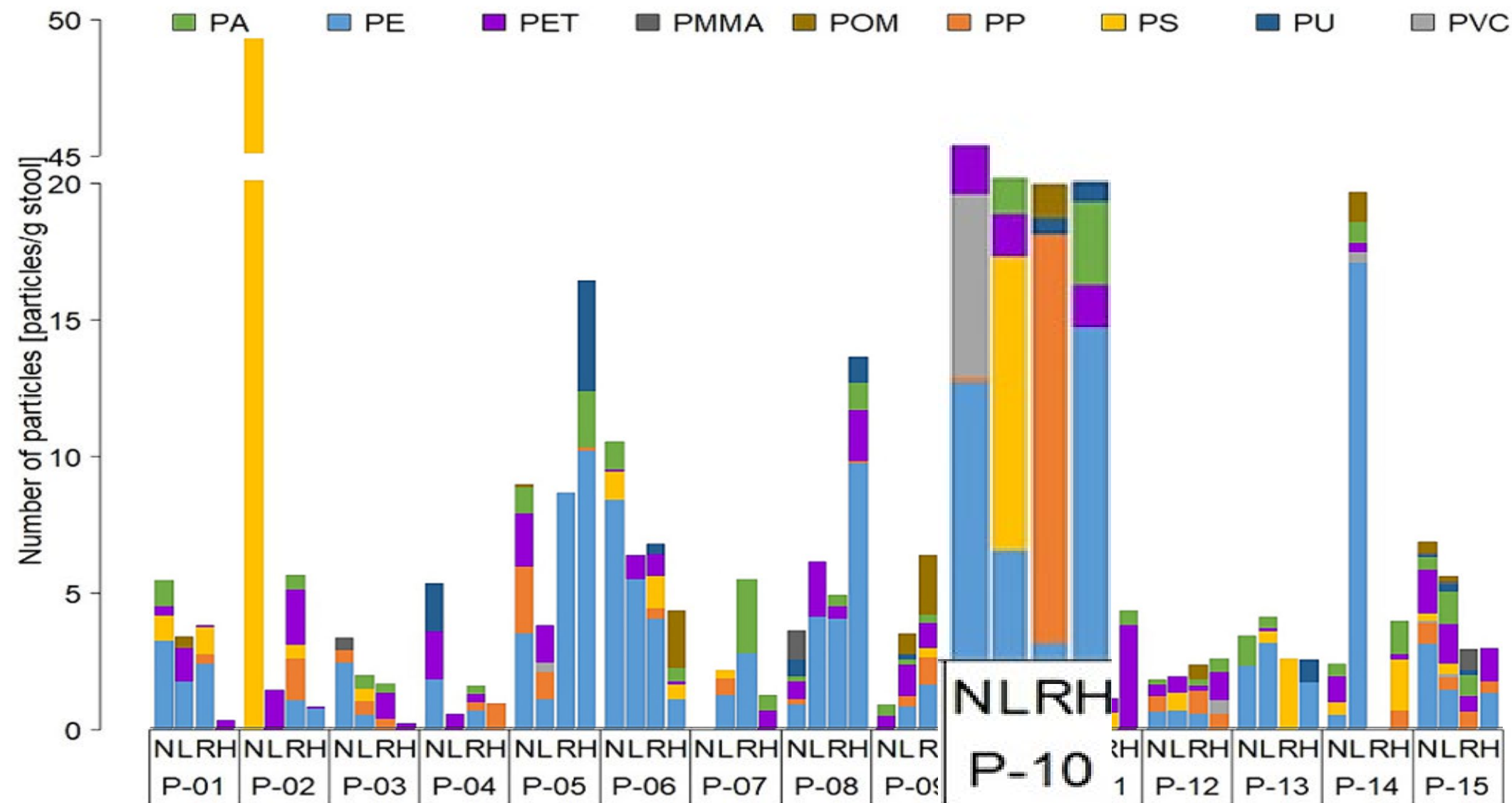
Stool Microplastic – Normal, Low, Reset, High Plastic Consumption



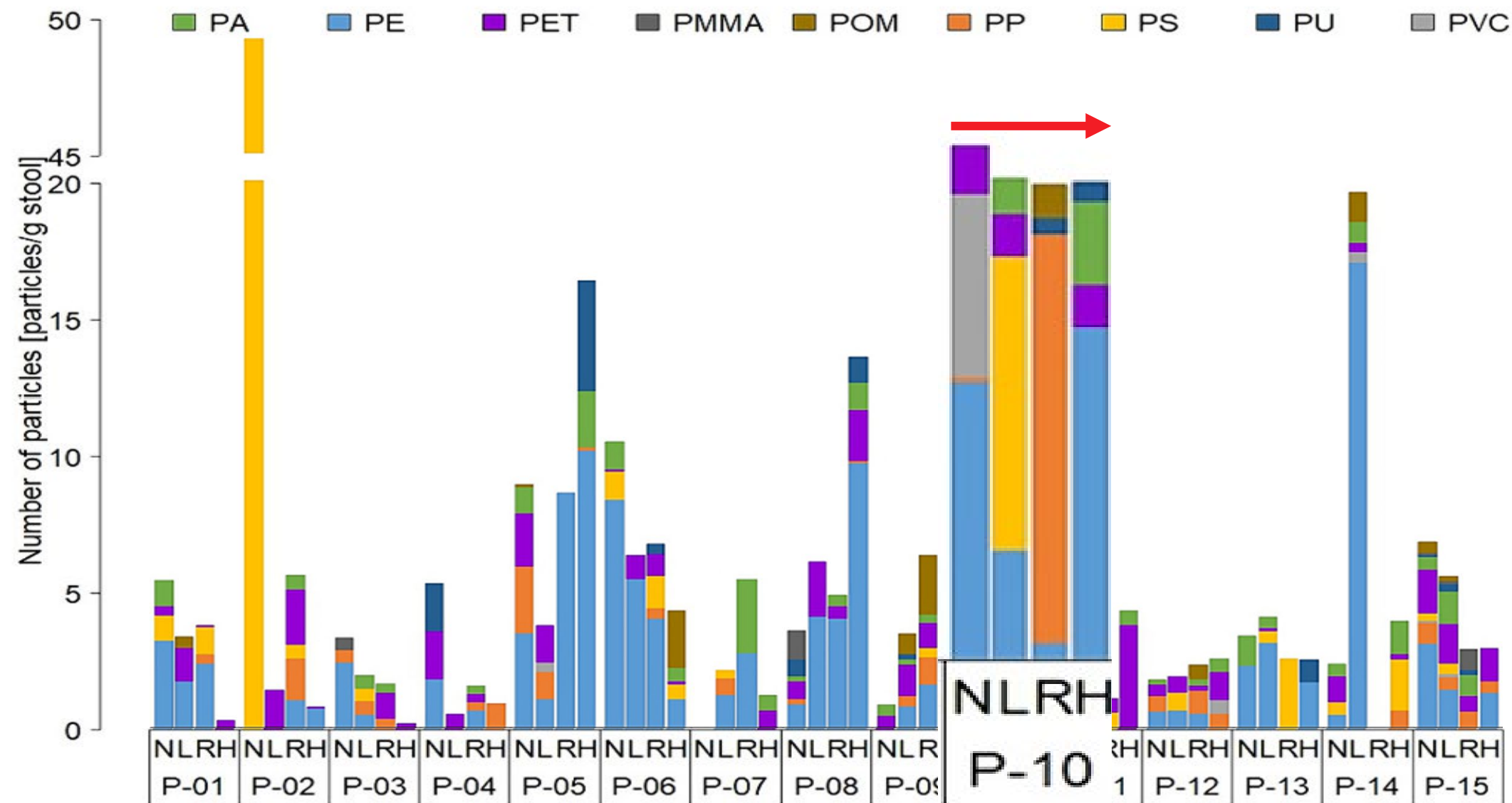
Stool Microplastic – Normal, Low, Reset, High Plastic Consumption



Stool Microplastic – Normal, Low, Reset, High Plastic Consumption



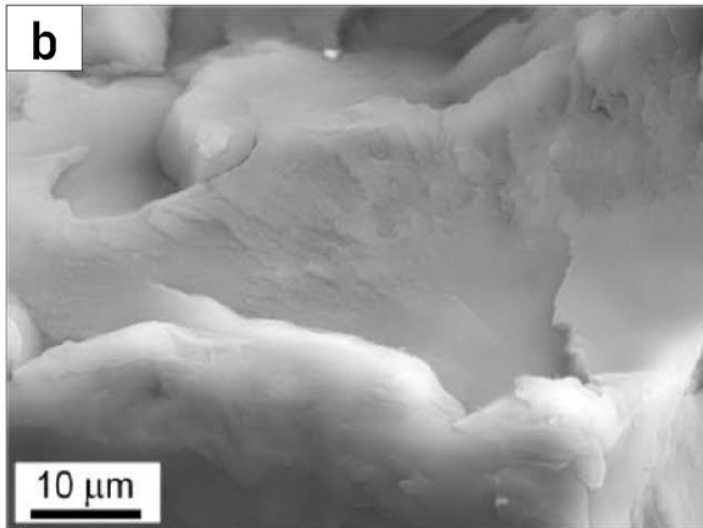
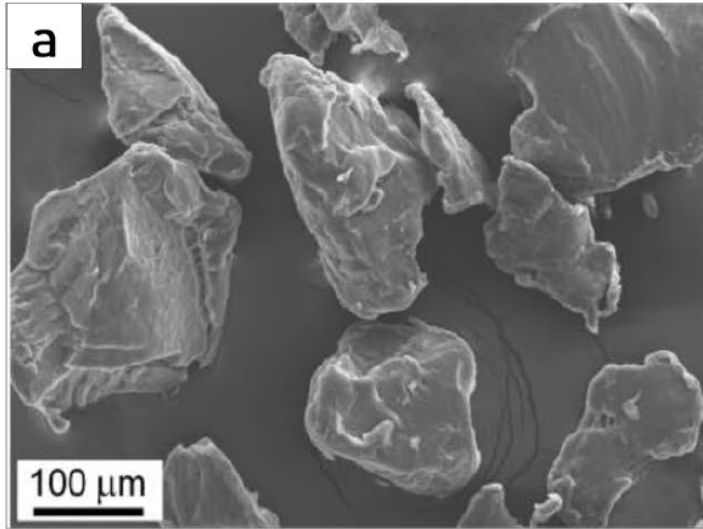
Stool Microplastic – Normal, Low, Reset, High Plastic Consumption



PET polyethylene terephthalate

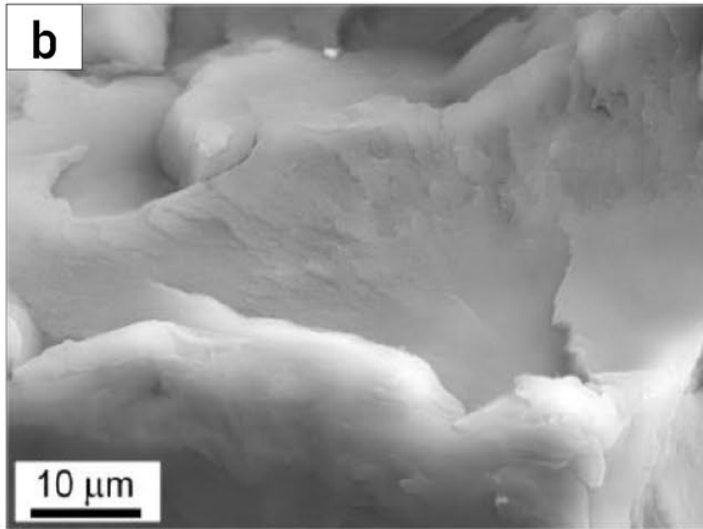
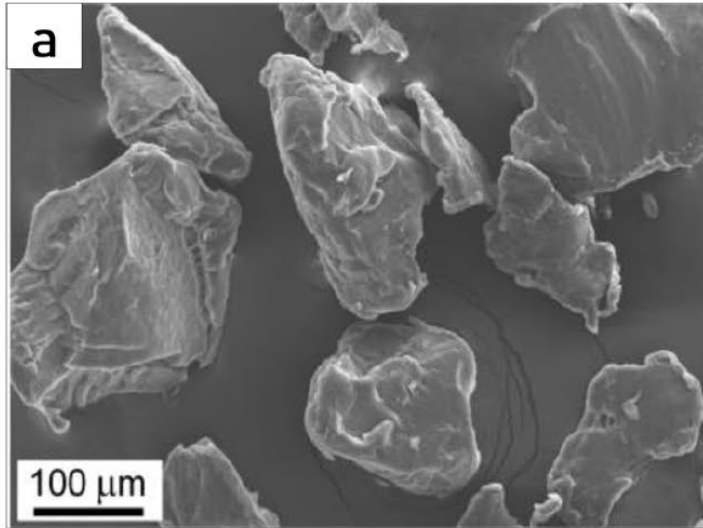
PET polyethylene terephthalate

Original microplastics

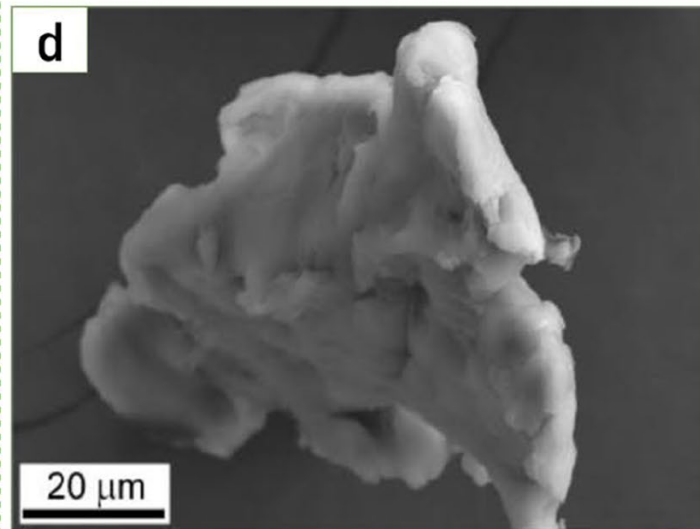
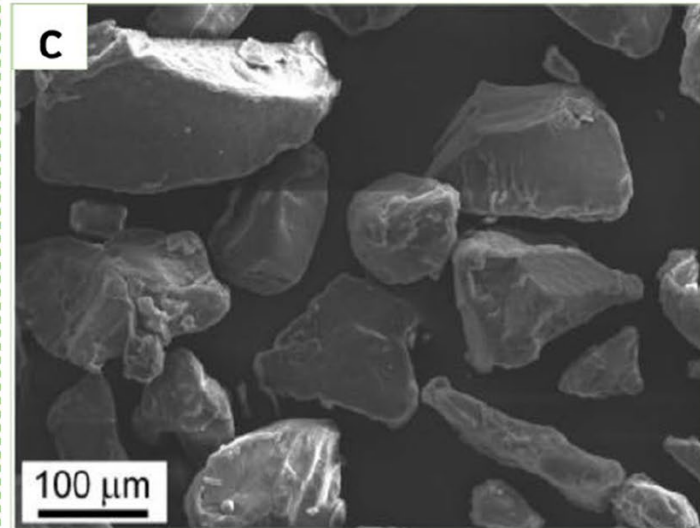


PET polyethylene terephthalate

Original microplastics

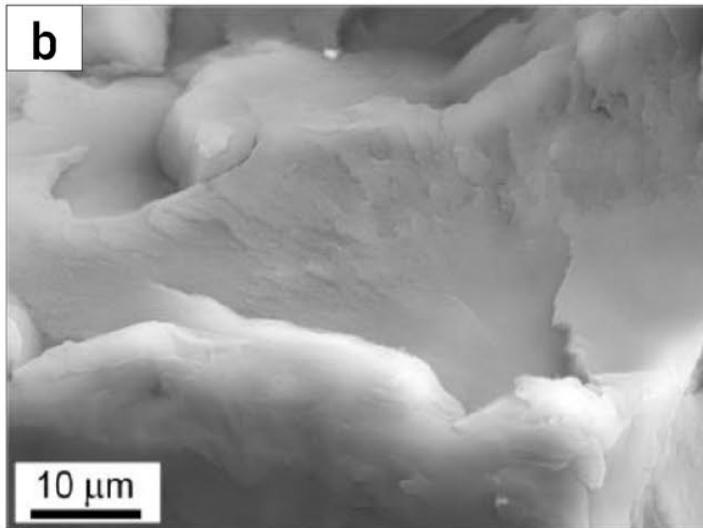
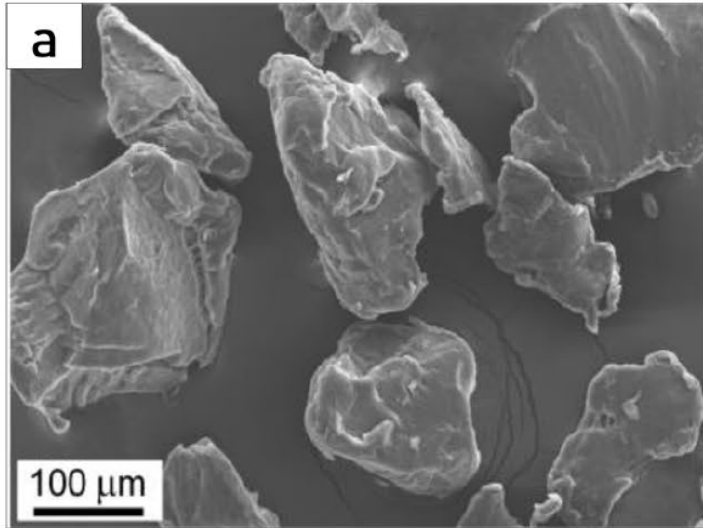


In vitro gastric digestion

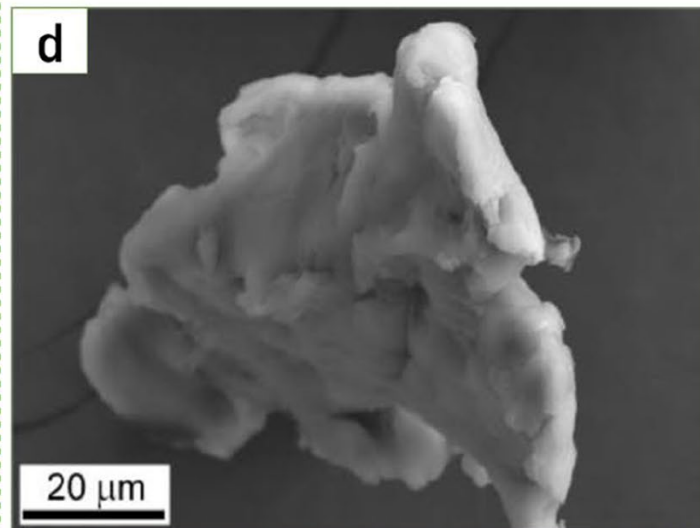
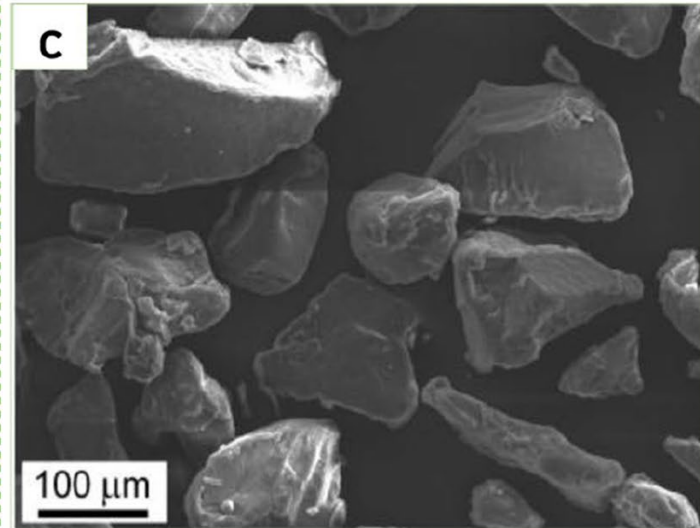


PET polyethylene terephthalate

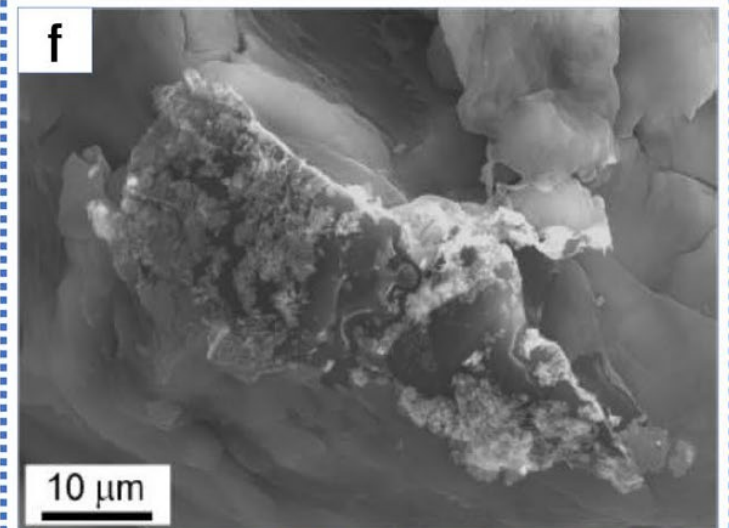
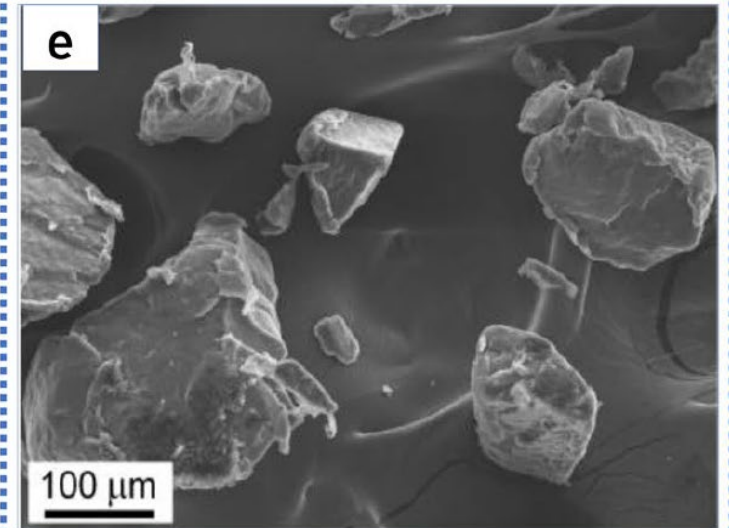
Original microplastics



In vitro gastric digestion



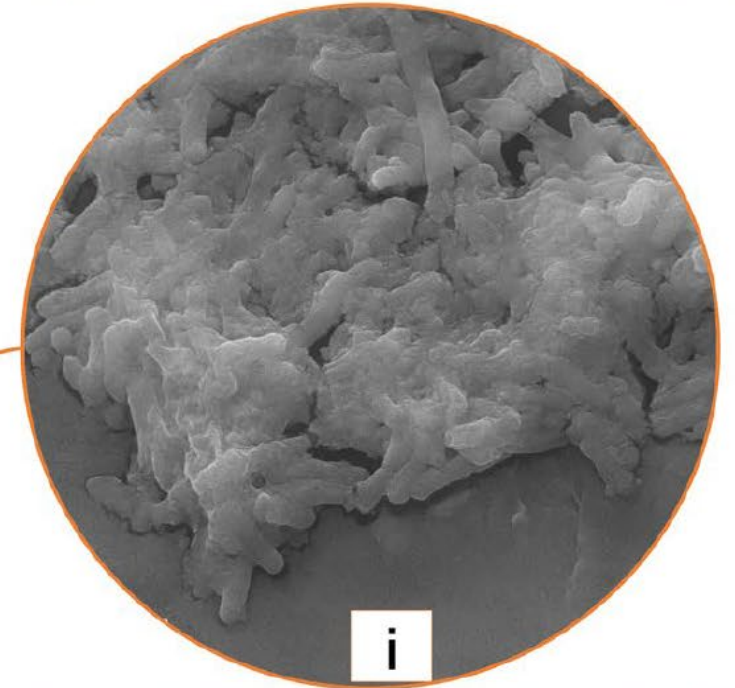
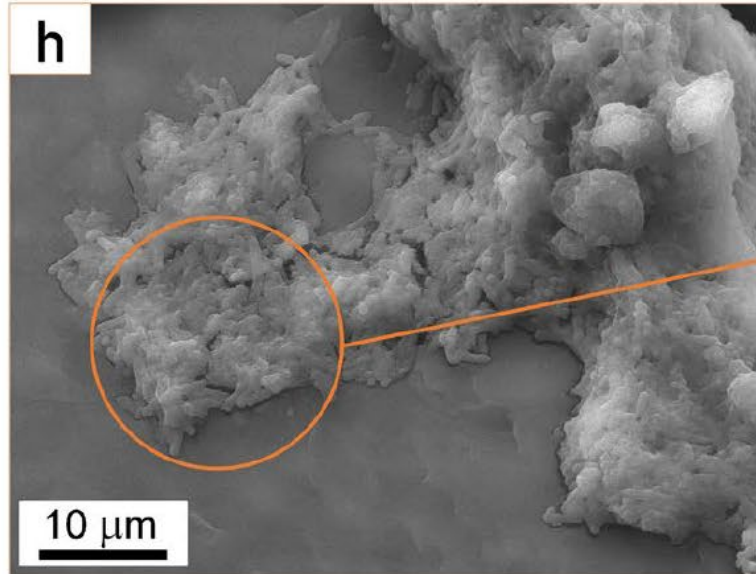
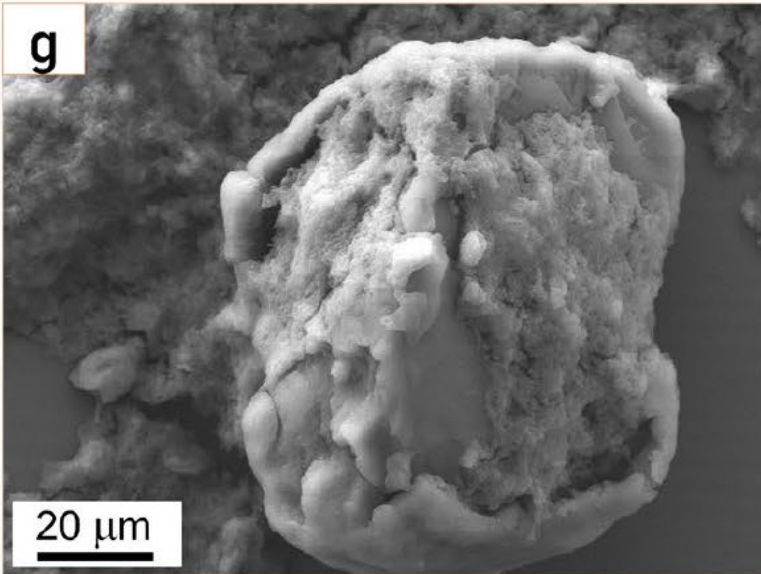
In vitro intestinal digestion



Colonic Fermentation

Colonic Fermentation

Dynamic *in vitro* colonic fermentation carried out by simgi®







Microbeads in Cosmetics



Microbeads in Cosmetics





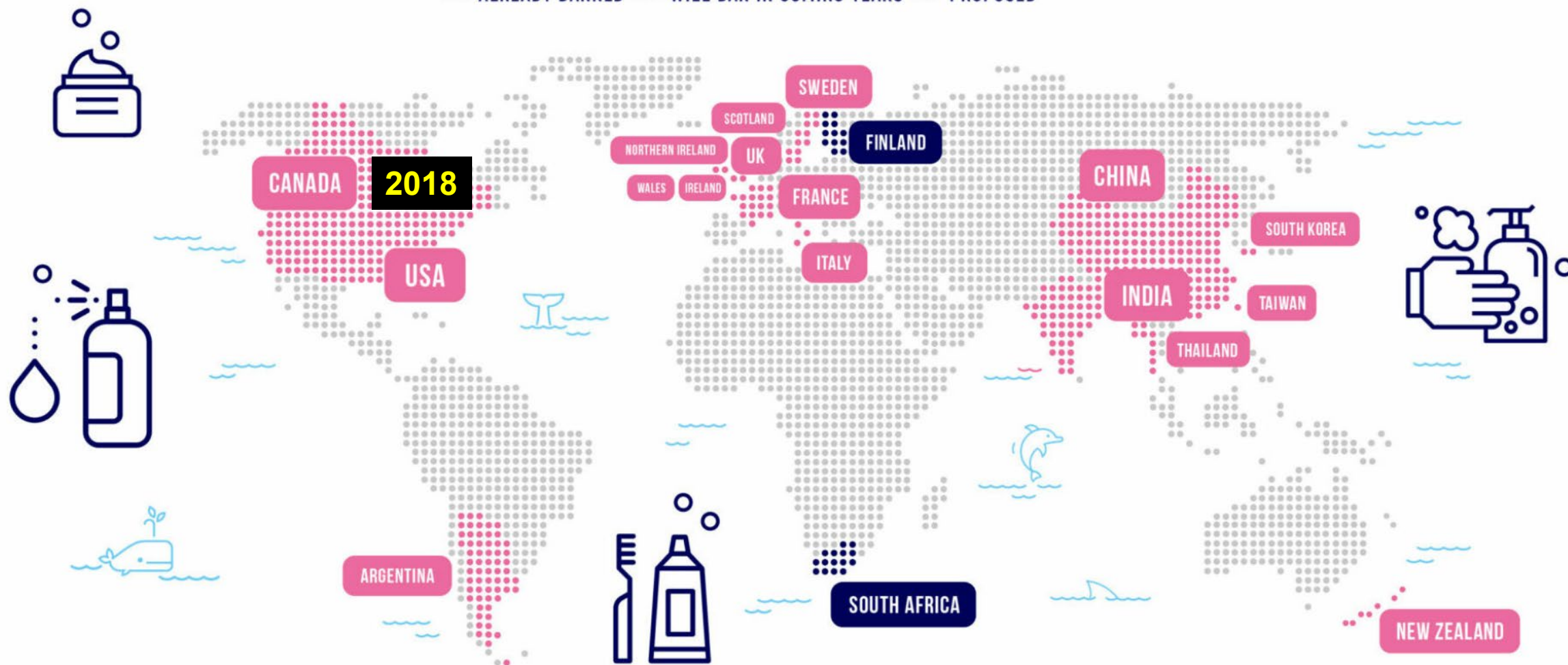
Microbeads in Cosmetics

Toothpaste



MICROBEADS BAN IN RINSE-OFF COSMETICS

..... ALREADY BANNED WILL BAN IN COMING YEARS PROPOSED





Clinical Topics

Latest In Cardiology

Education and Meetings

Tools and Practice Support



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Places with higher concentrations of microplastics see higher rates of hypertension, diabetes, stroke and other noncommunicable diseases

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Contact: Nicole Napoli, nnapoli@acc.org,

WASHINGTON (Mar 25, 2025) - Tiny fragments of plastic have become ubiquitous in our environment and our bodies. Higher exposure to these microplastics, which can be inadvertently consumed or inhaled, is associated with a heightened prevalence of chronic noncommunicable diseases, according to new research being presented at the American College of Cardiology's Annual Scientific Session (ACC.25).

Mitochondria as a target of micro- and nanoplastic toxicity

Published online by Cambridge University Press: **21 March 2024**

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Fulya Dal Yöntem and Müfide Aydoğan Ahbab 

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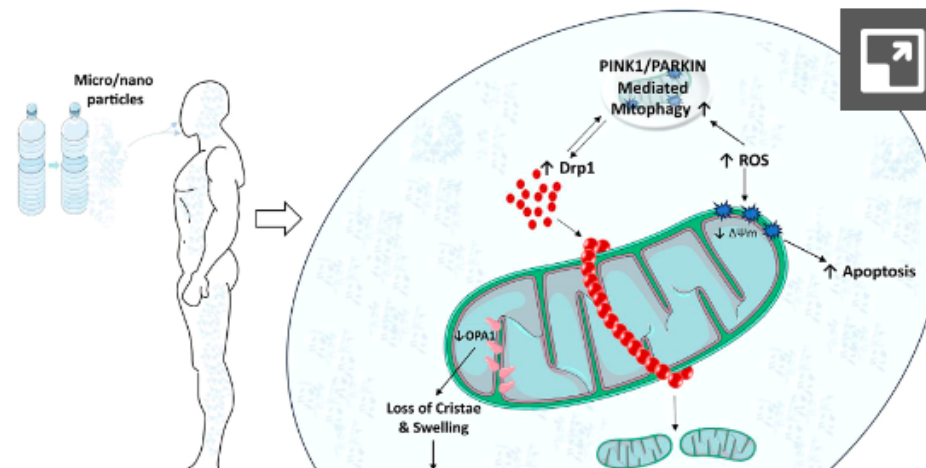


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Abstract



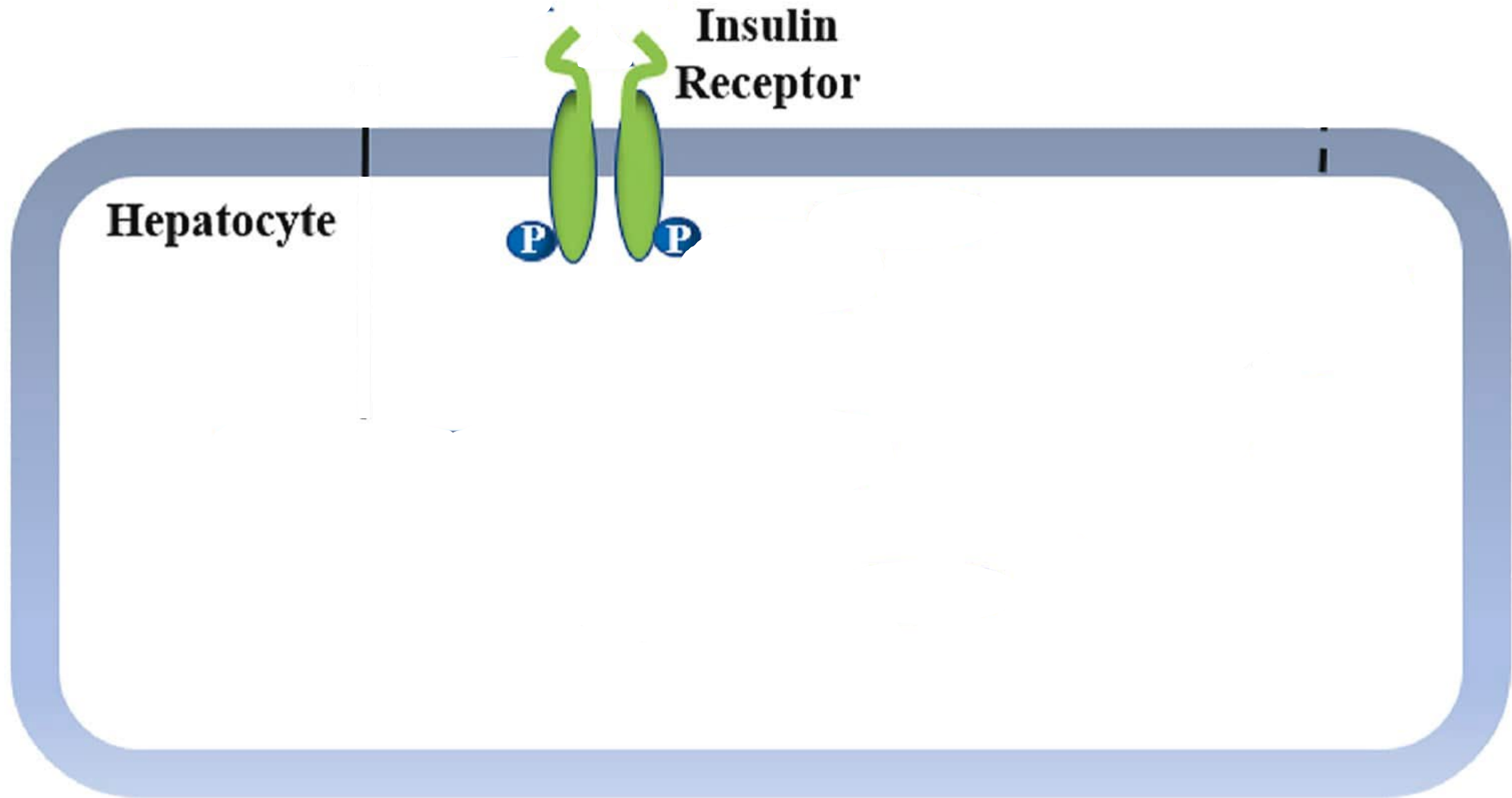
Mitochondria are unique organelles to perform critical functions such as energy production, lipid oxidation, calcium homeostasis, and steroid hormone synthesis in eukaryotic cells. The proper functioning of mitochondria

Effects of oral administration of polystyrene nanoplastics on plasma glucose metabolism in mice

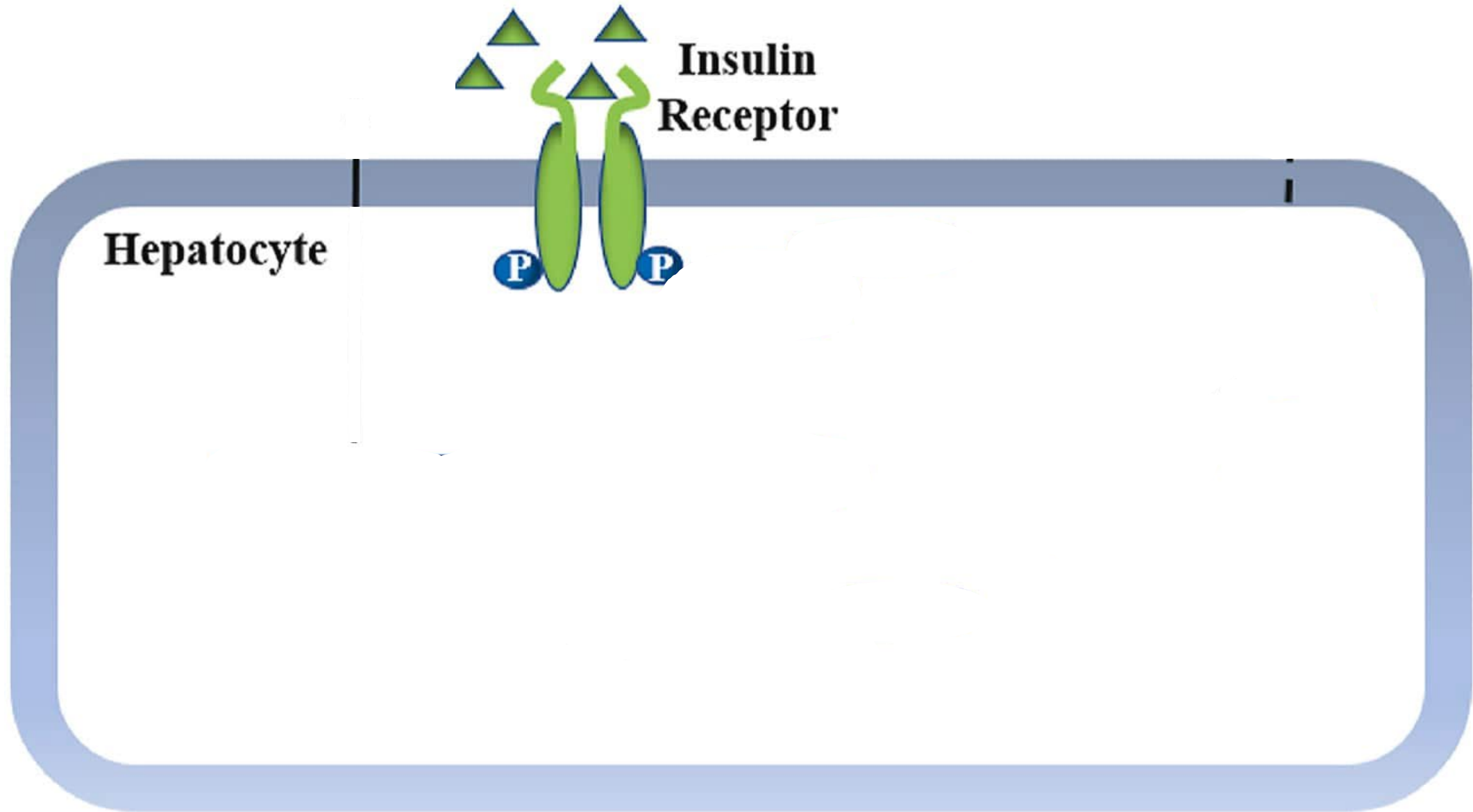
Xingpei Fan^a, Xiangjuan Wei^{a b}, Hailong Hu^c, Boya Zhang^a, Daqian Yang^a, Haining Du^a,
Ruijiao Zhu^a, Xiaotong Sun^a, Yuri Oh^d, Ning Gu^{a b}  

^a School of Life Science and Technology, Harbin Institute of Technology, Harbin, 150001, China

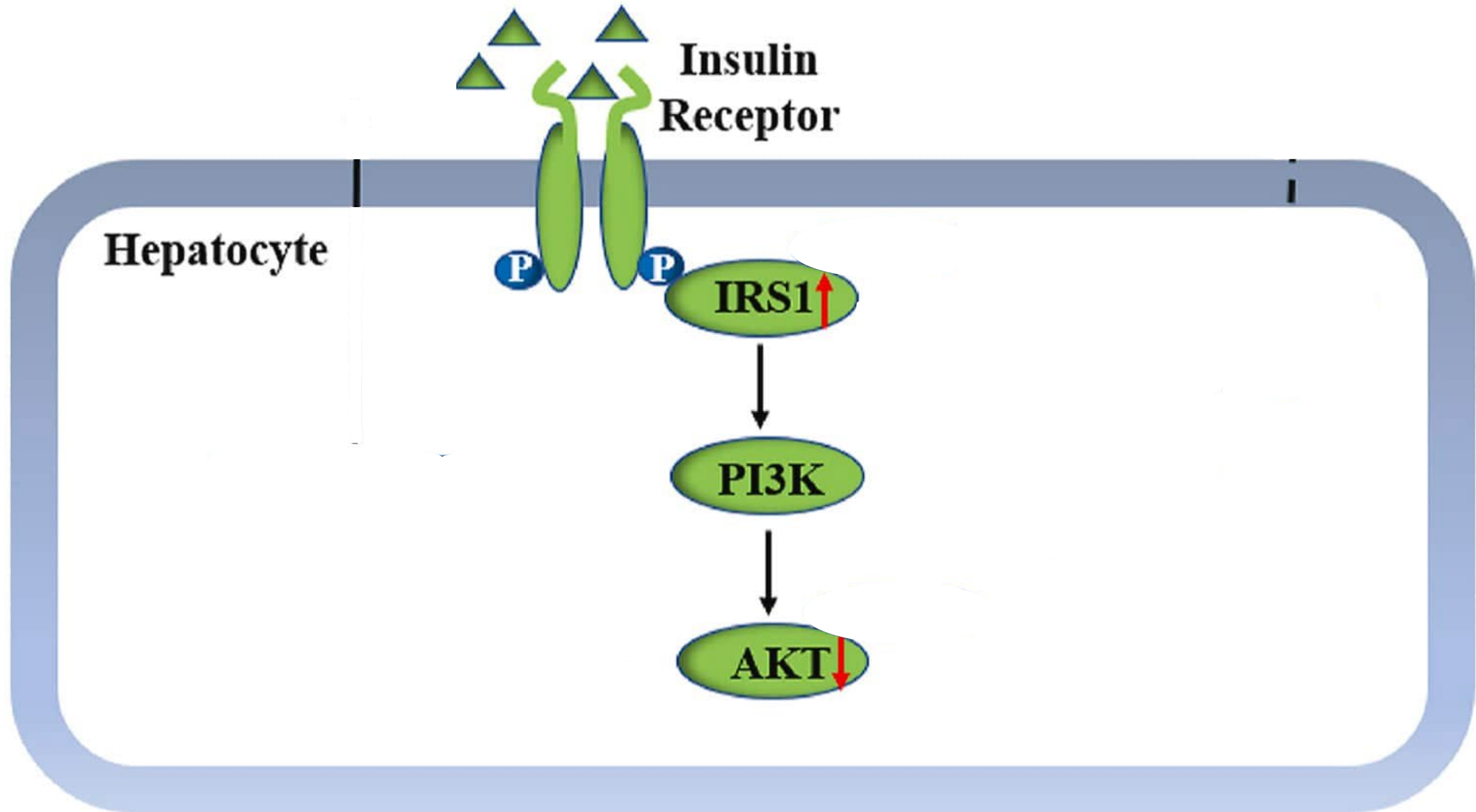
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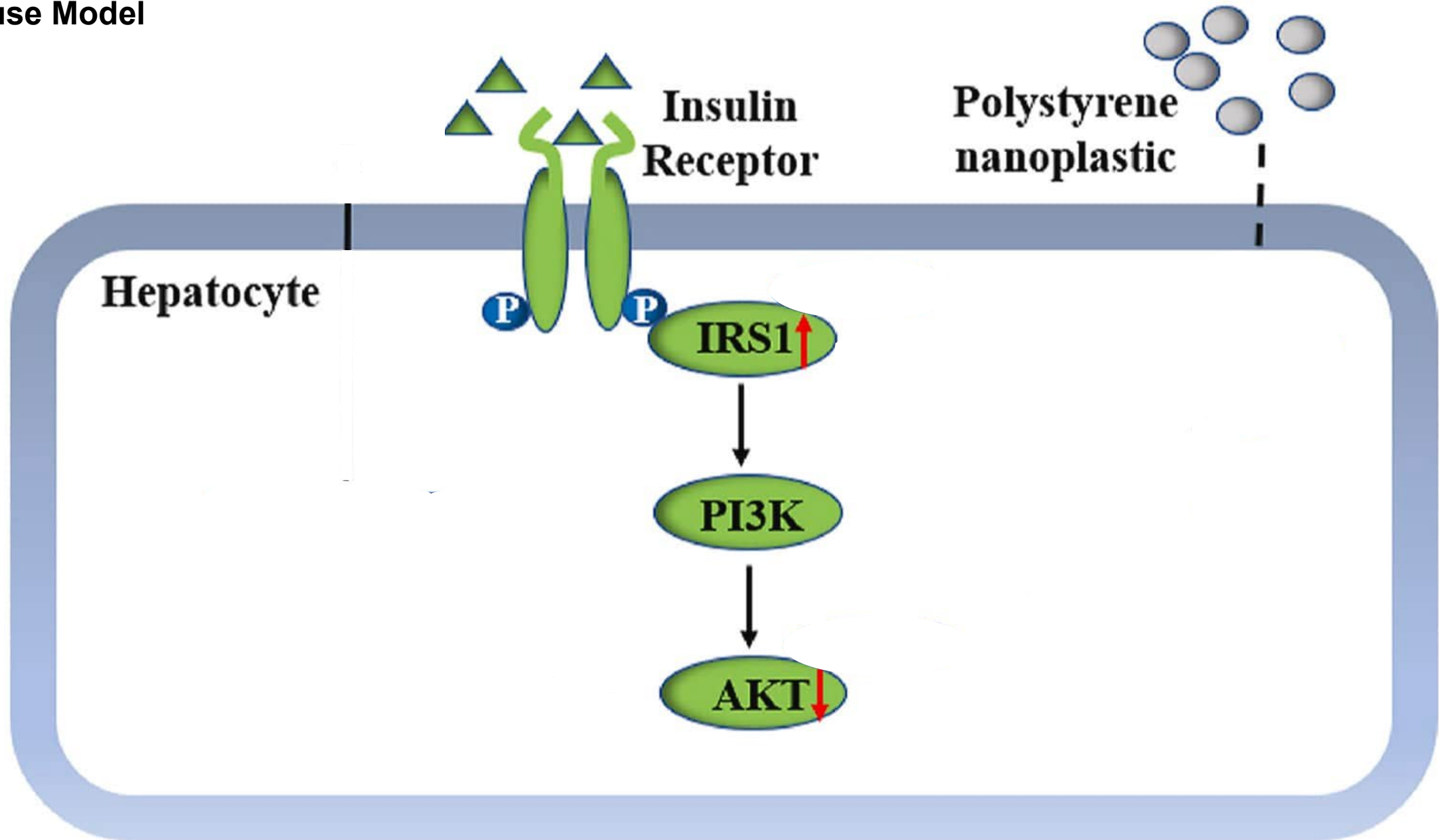
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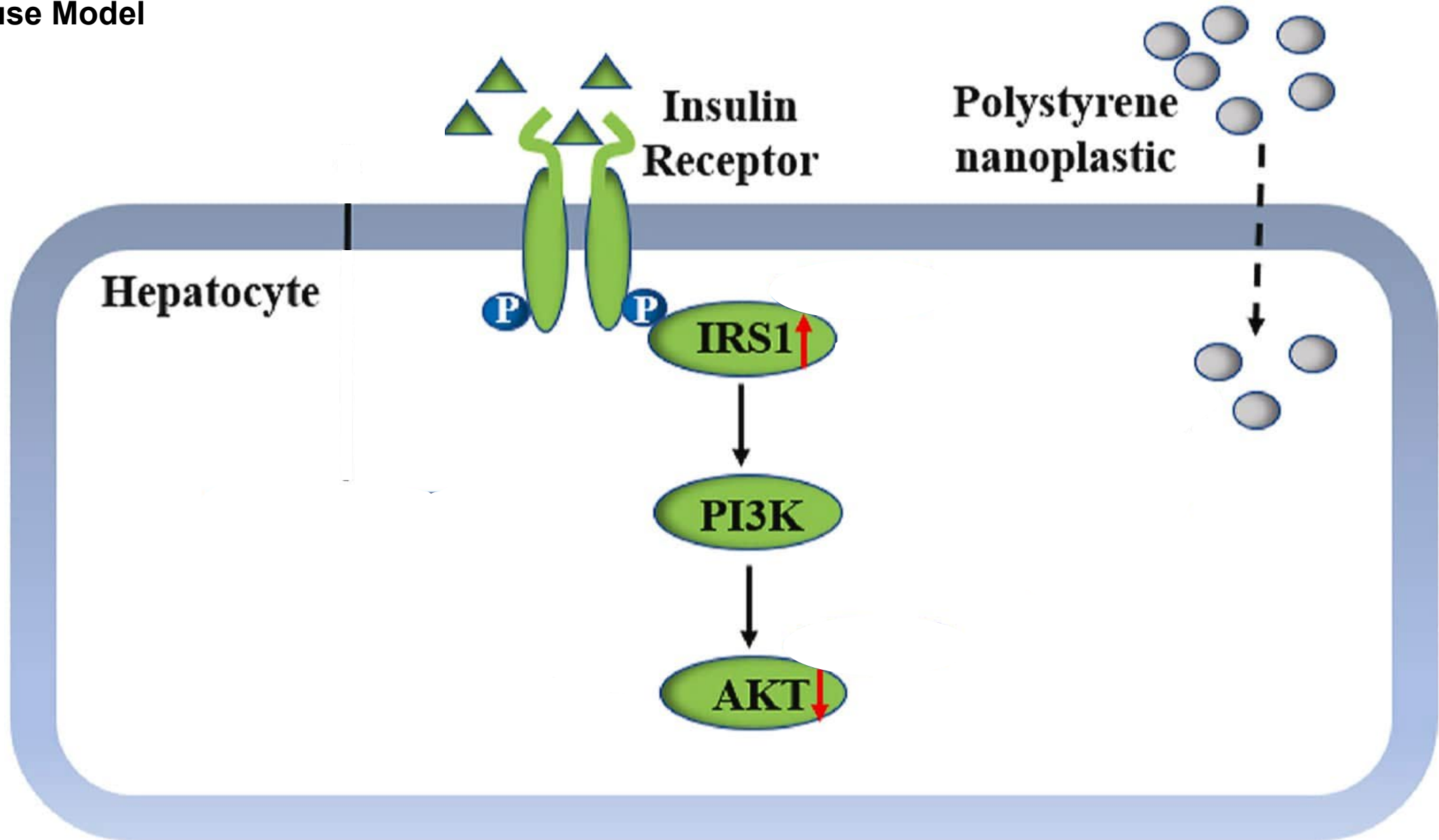
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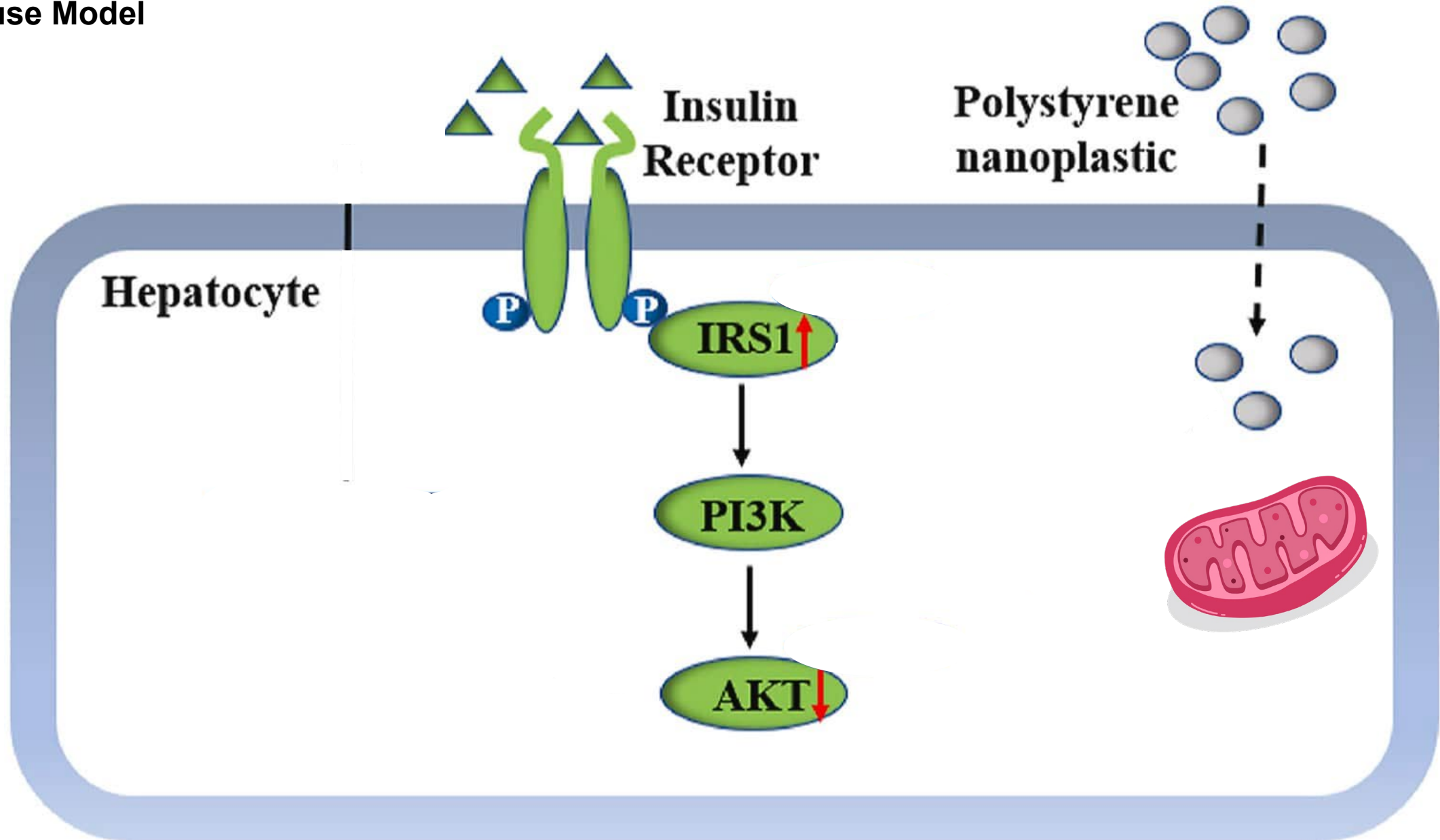
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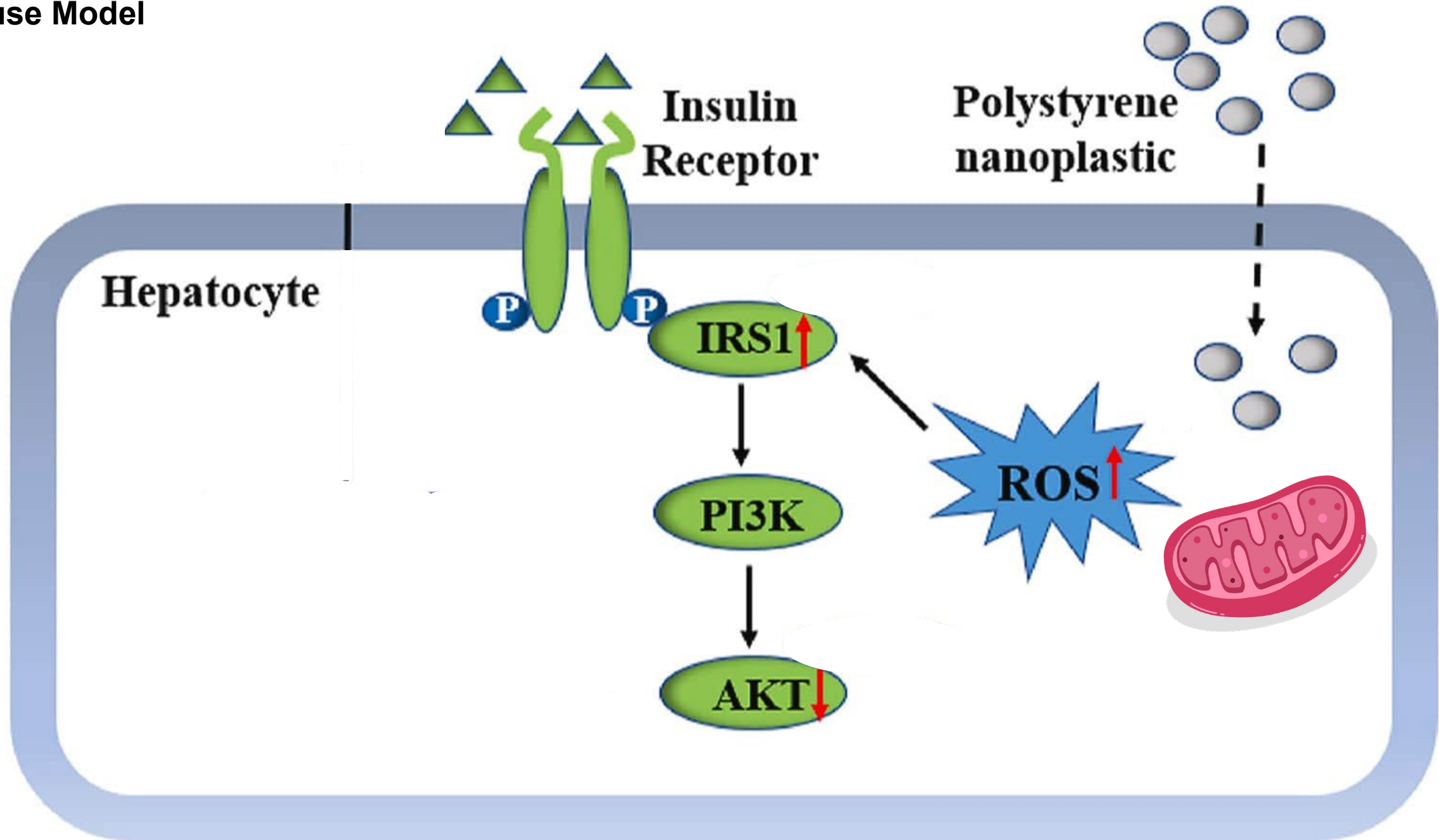
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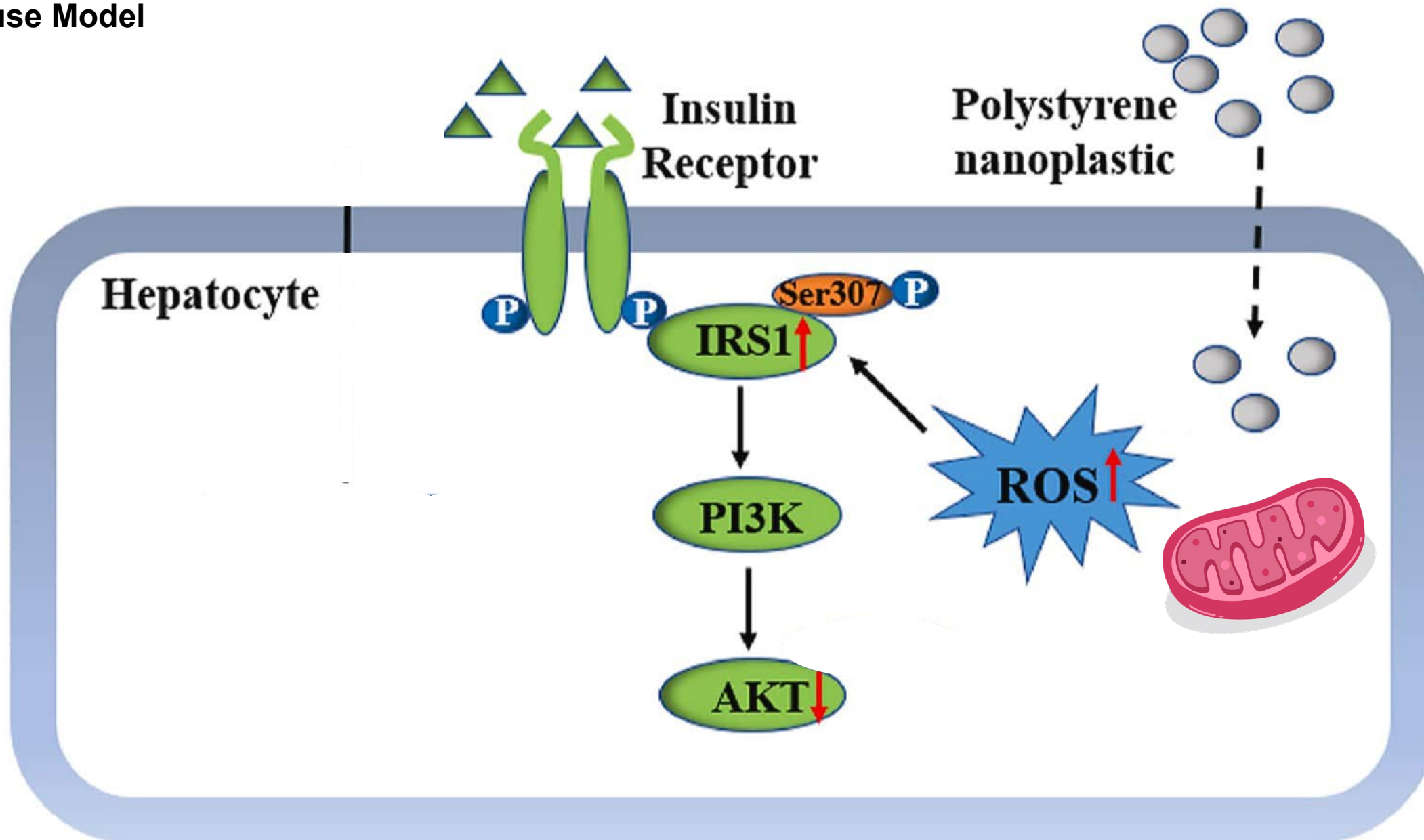
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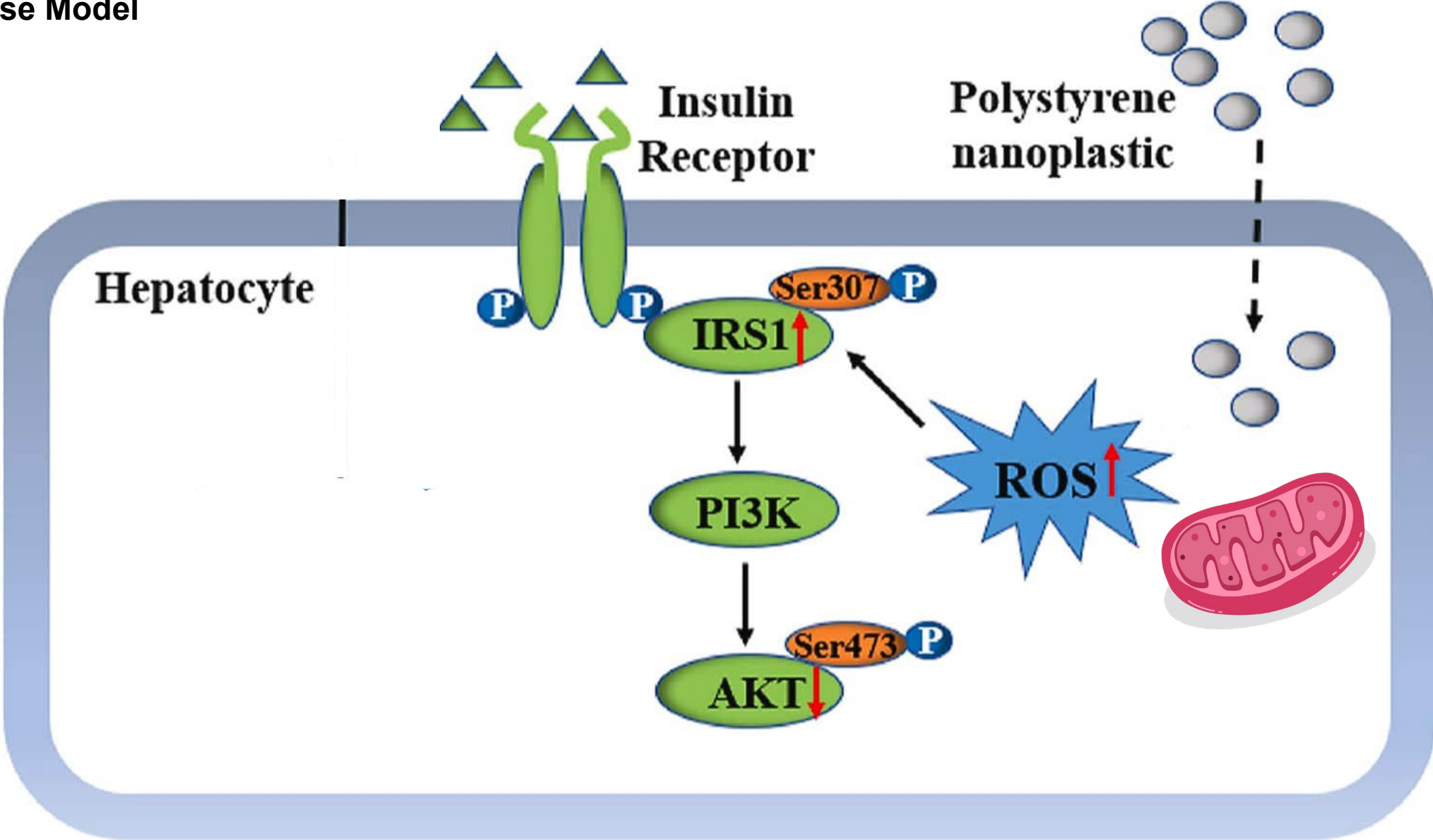
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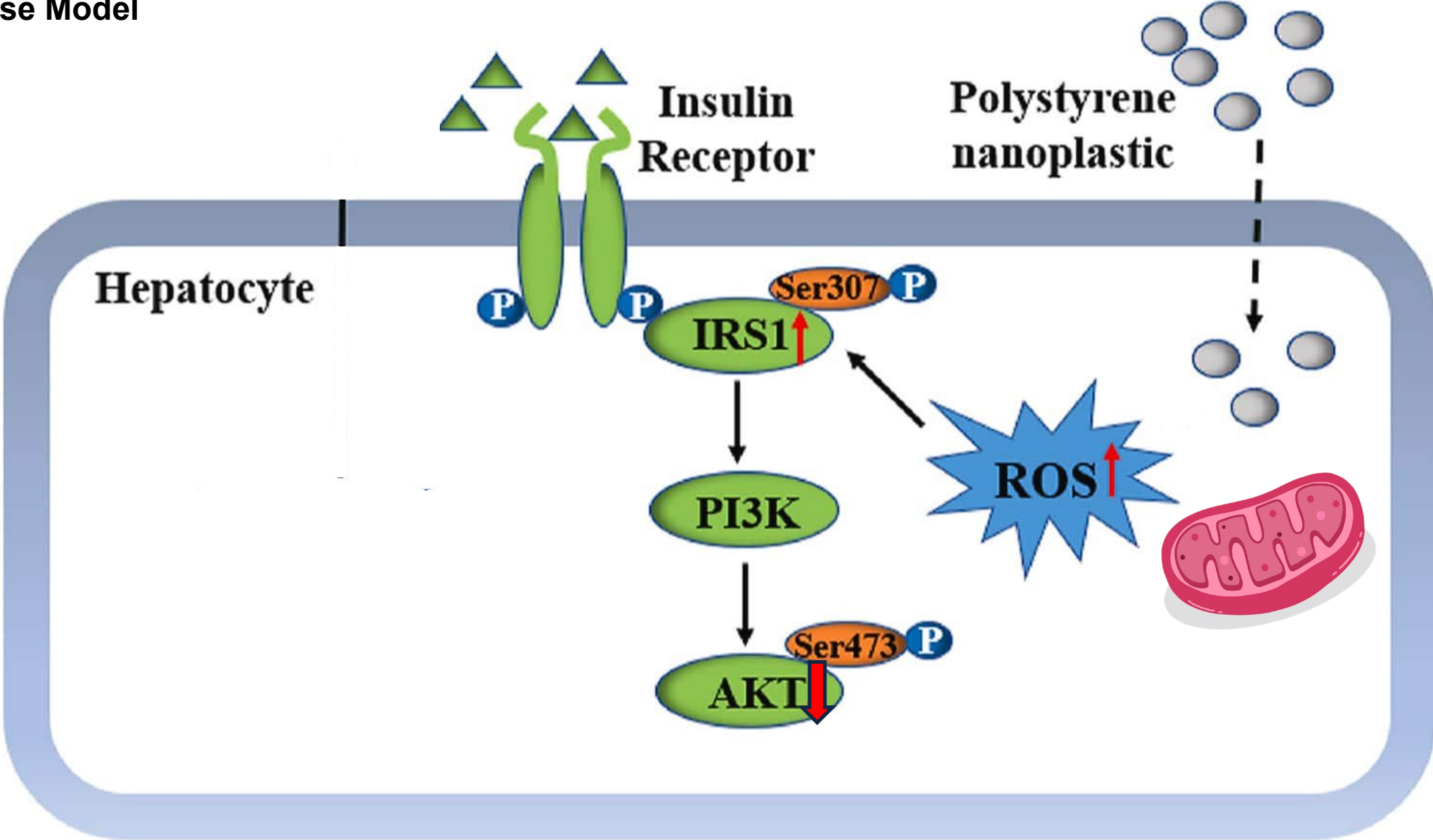
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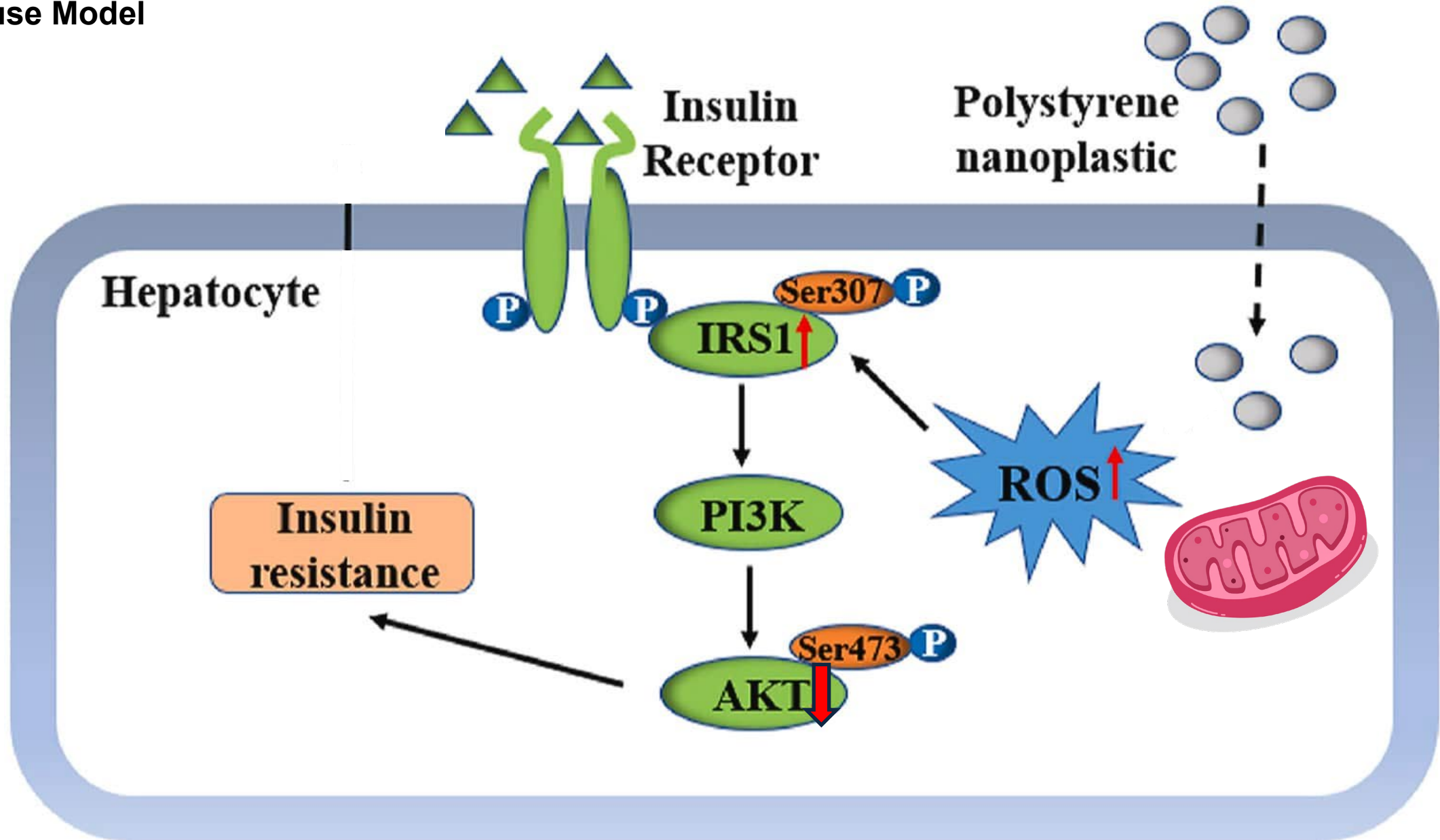
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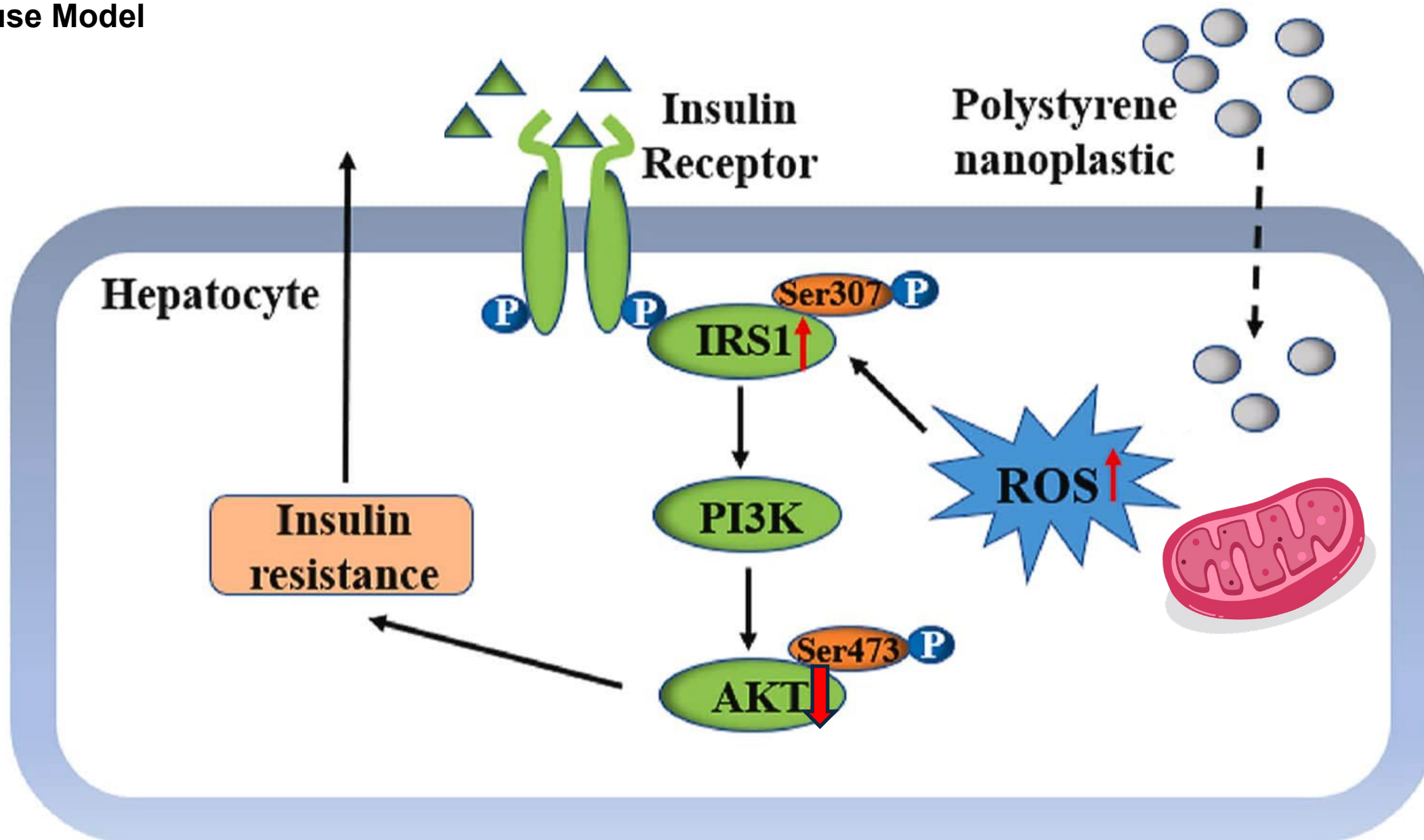
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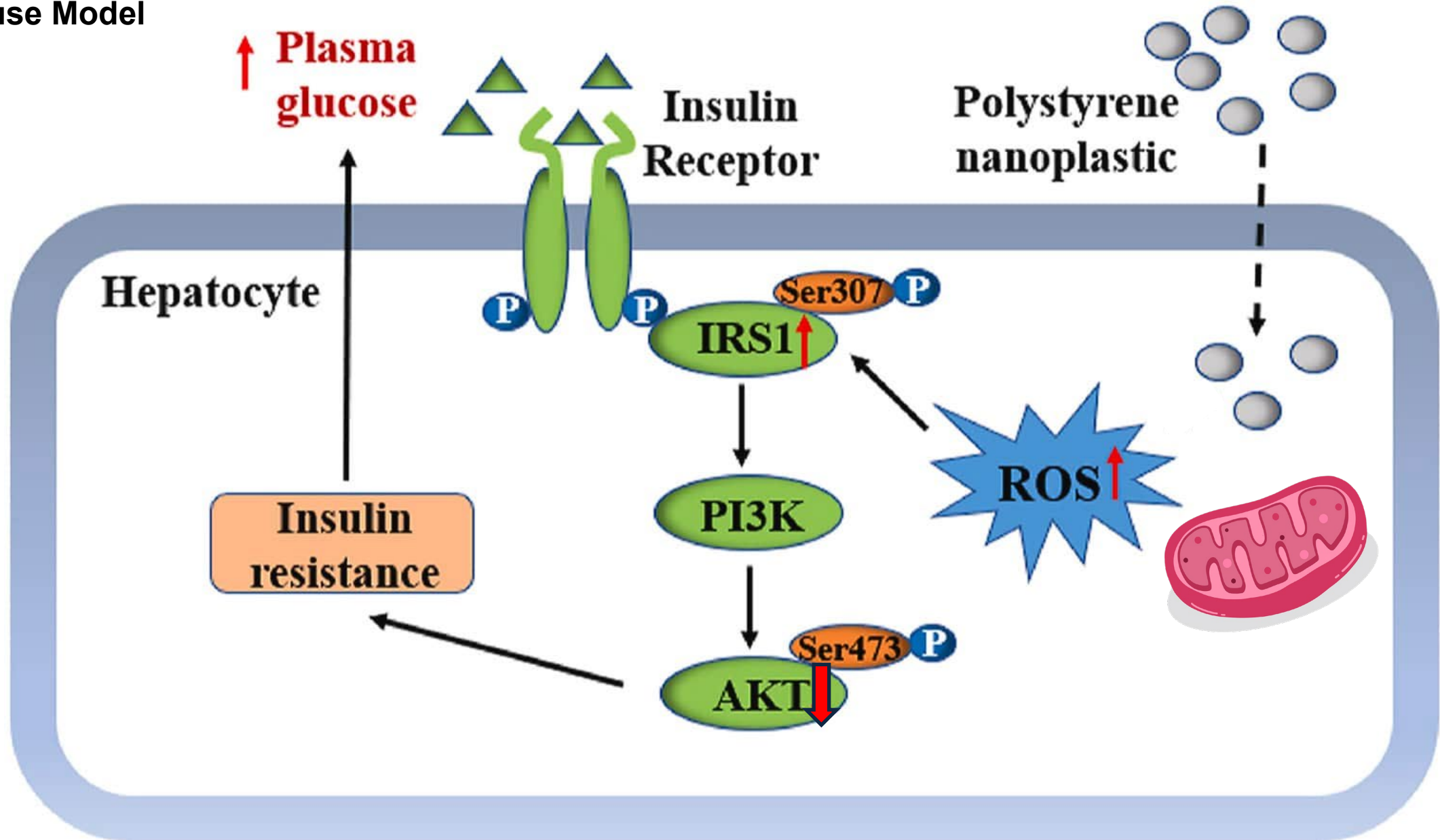
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Common household plastics linked to thousands of global deaths from heart disease, study finds

By [CNN](#)

Published: April 29, 2025 at 7:49AM EDT





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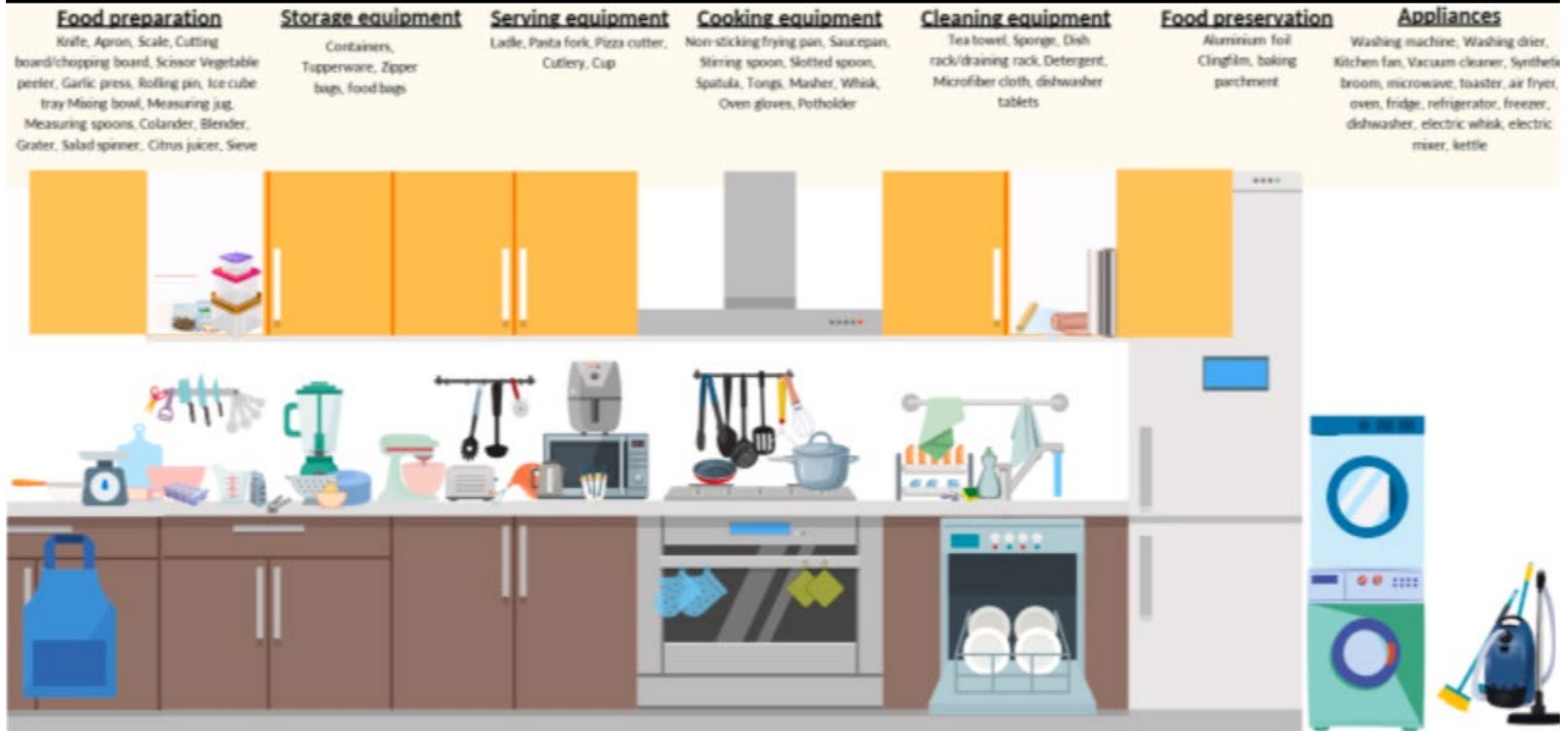
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Lots of exposure

Lots of exposure



Plastic Cutting Boards



Per- and polyfluoroalkyl substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS)

polytetrafluoroethylene (PTFE)

Per- and polyfluoroalkyl substances (PFAS)

polytetrafluoroethylene (PTFE) = Teflon

Per- and polyfluoroalkyl substances (PFAS)

polytetrafluoroethylene (PTFE) = Teflon

How Teflon Works

Teflon is the brand name for polytetrafluoroethylene. It is a carbon-fluorine polymer.

- The carbon and fluorine atoms stick to each other, but not to food or other substances.
- Roughing the pan surface helps Teflon stick to it.
- Sometimes chemical treatments on the pan change Teflon touching it, so it sticks.



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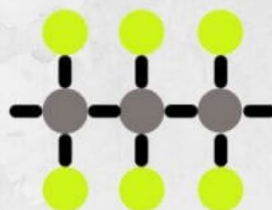
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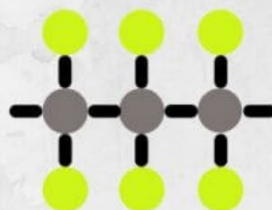
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Cast Iron



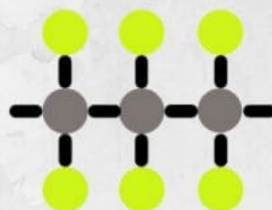
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Stainless Steel



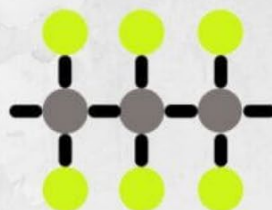
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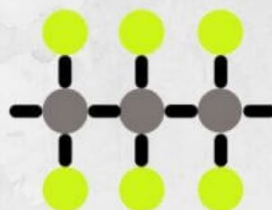
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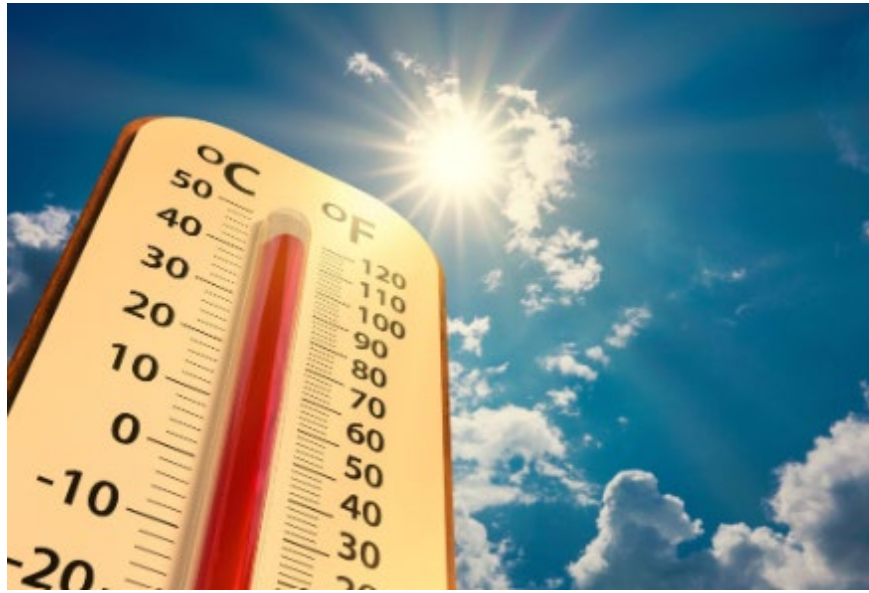
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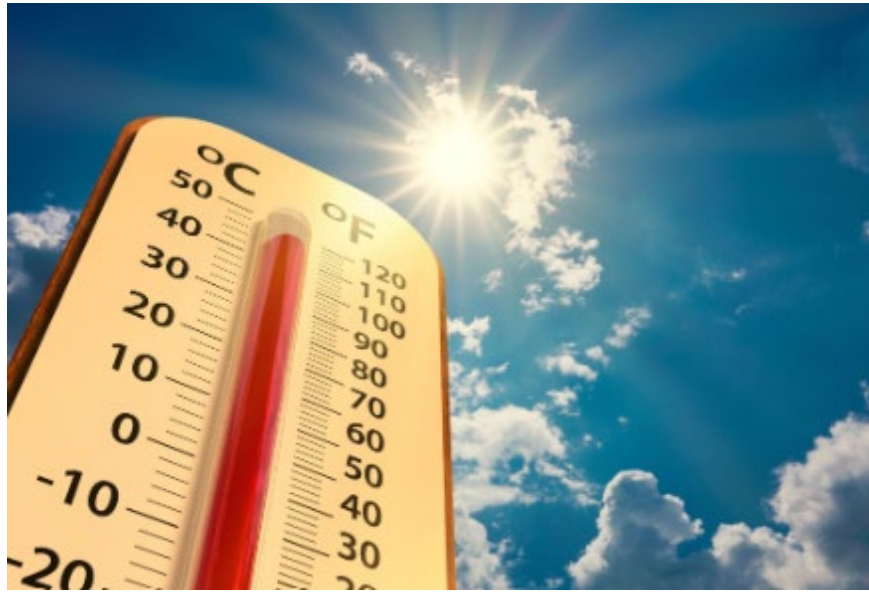
For Baby

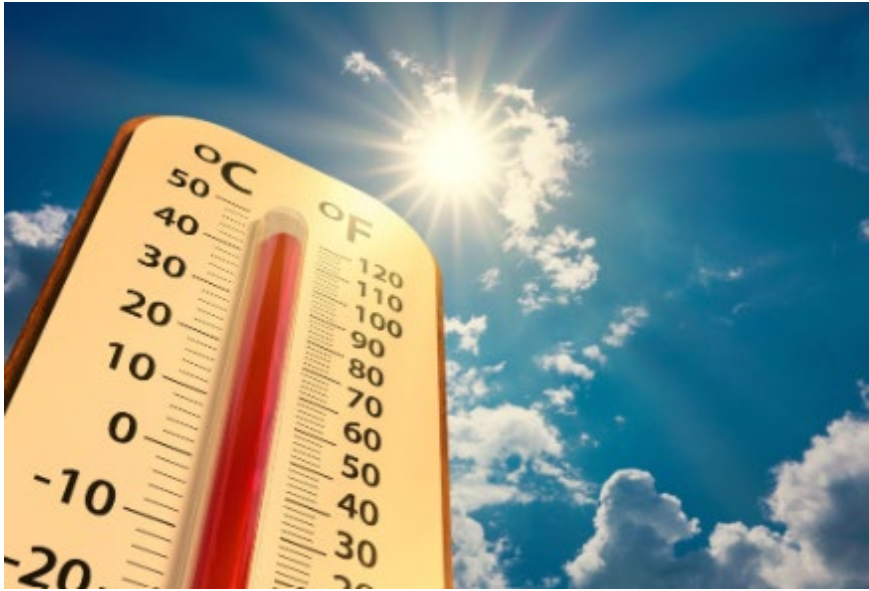
For Baby



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TEA and TOASTERS



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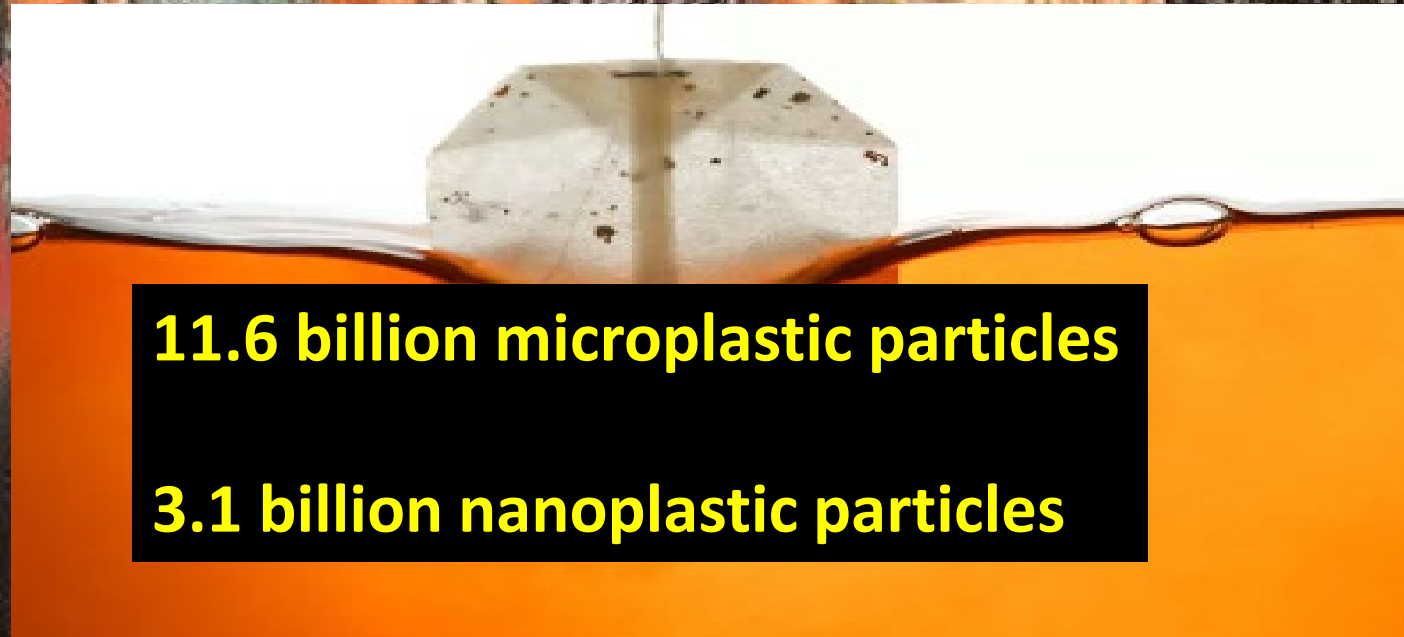


11.6 billion microplastic particles

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TEA and TOASTERS



11.6 billion microplastic particles

3.1 billion nanoplastic particles

TEA and TOASTERS



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A yellow front loader is shown from a low angle, dumping a large quantity of dark, lumpy sewage sludge onto a paved road. The sludge is being thrown into the air, creating a dense cloud of particles. In the background, a silver sedan is parked on the road. The scene is set in a grassy area under a clear blue sky. A utility pole is visible in the distance.

SEWAGE SLUDGE



SEWAGE SLUDGE



SEWAGE SLUDGE





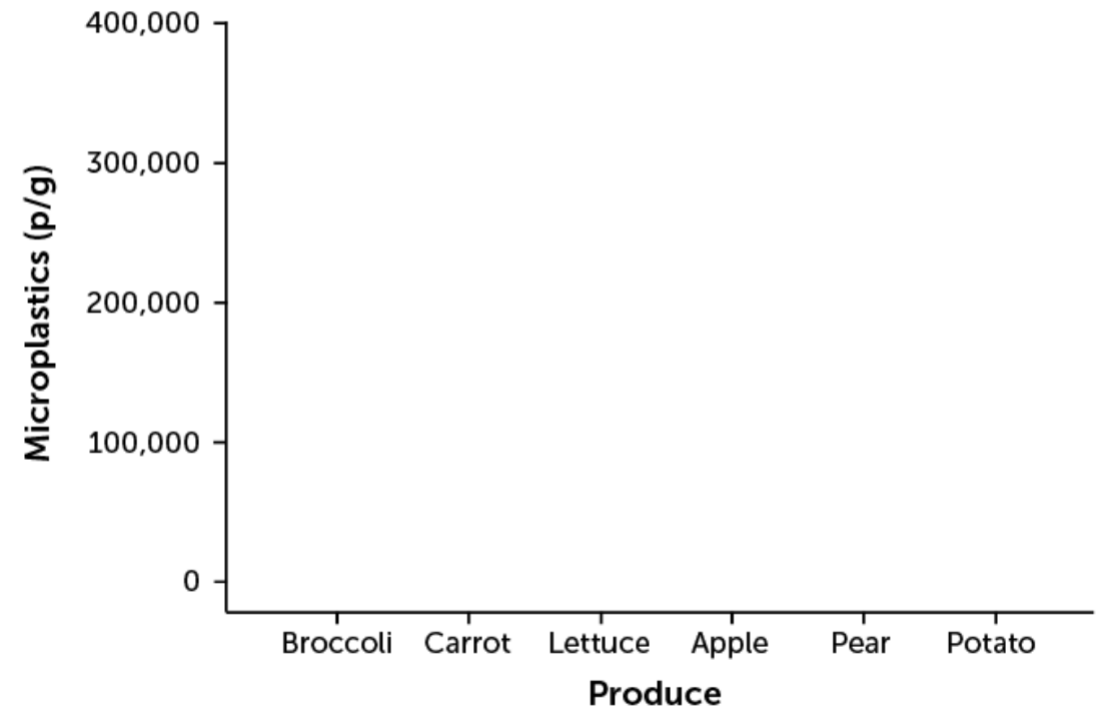
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Microplastics in everyday produce

Fruits and vegetables purchased at local markets in Catania, Italy, showed wide variability in the numbers of microplastic particles present. The research highlights the need for more studies on the sources of microplastic exposure.

Microplastic particles detected in produce samples



T. TIBBITTS

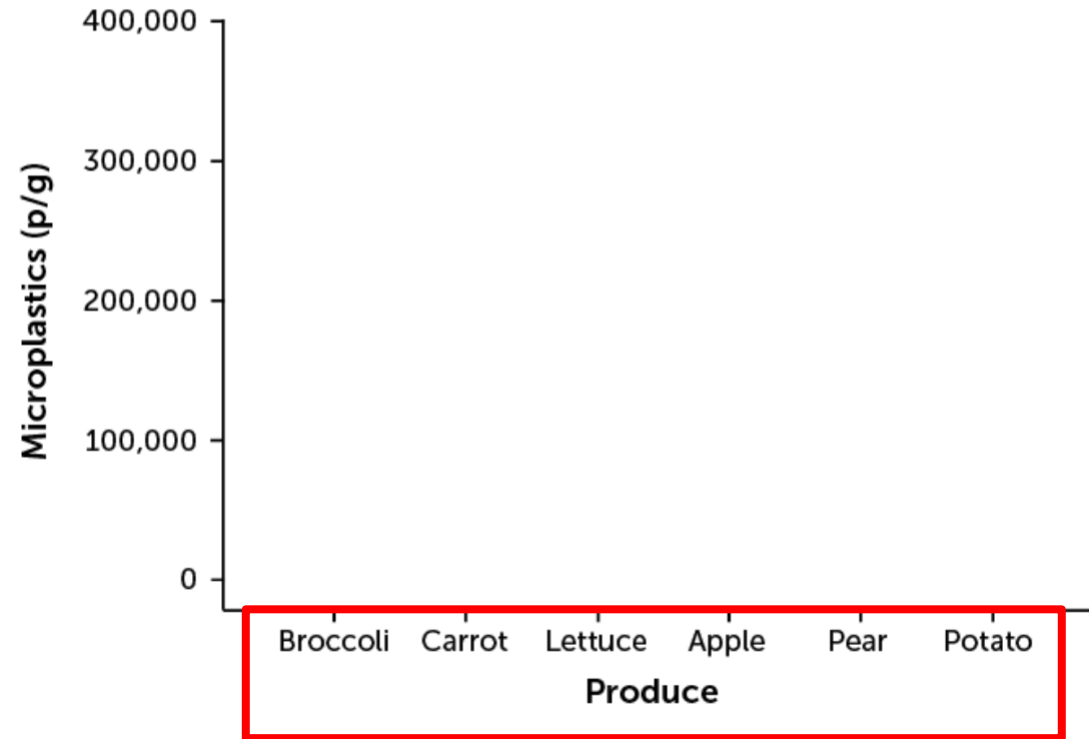
SOURCE: G.O. CONTI *ET AL*/ENVIRONMENTAL RESEARCH 2020



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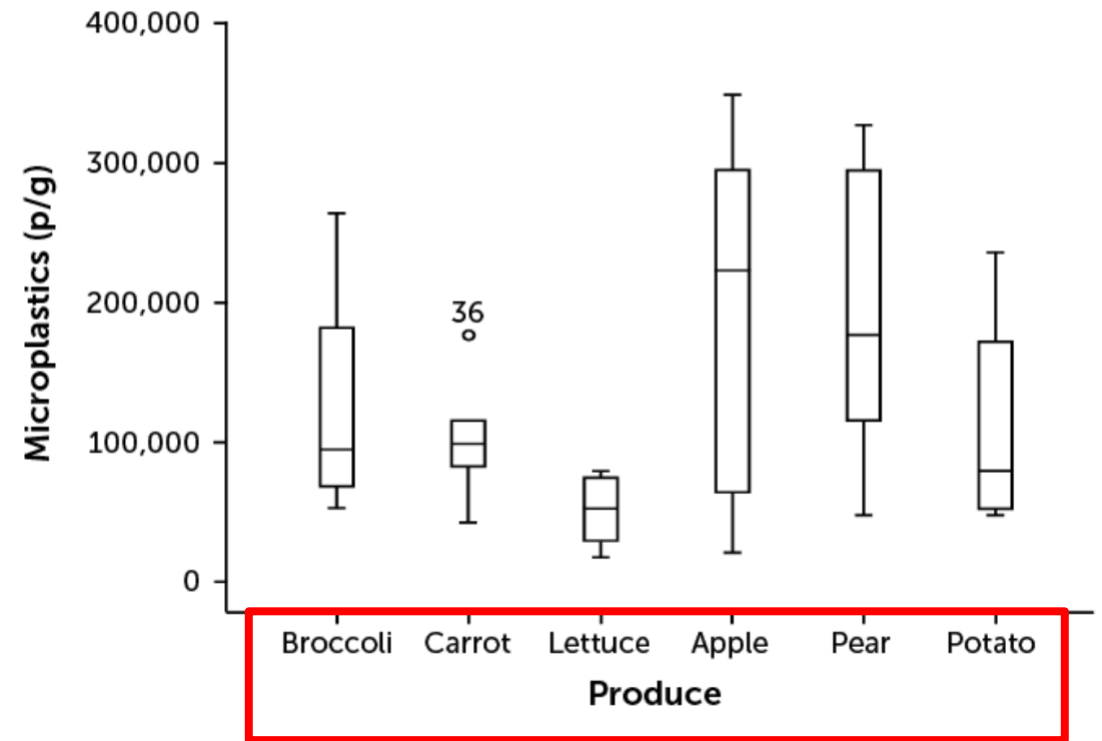
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Occurrence of Polyethylene Terephthalate and Polycarbonate Microplastics in Infant and Adult Feces

Junjie Zhang, Lei Wang, Leonardo Trasande September 22, 2021

MICROPLASTICS EXPOSURE
ng/kg-bw/day

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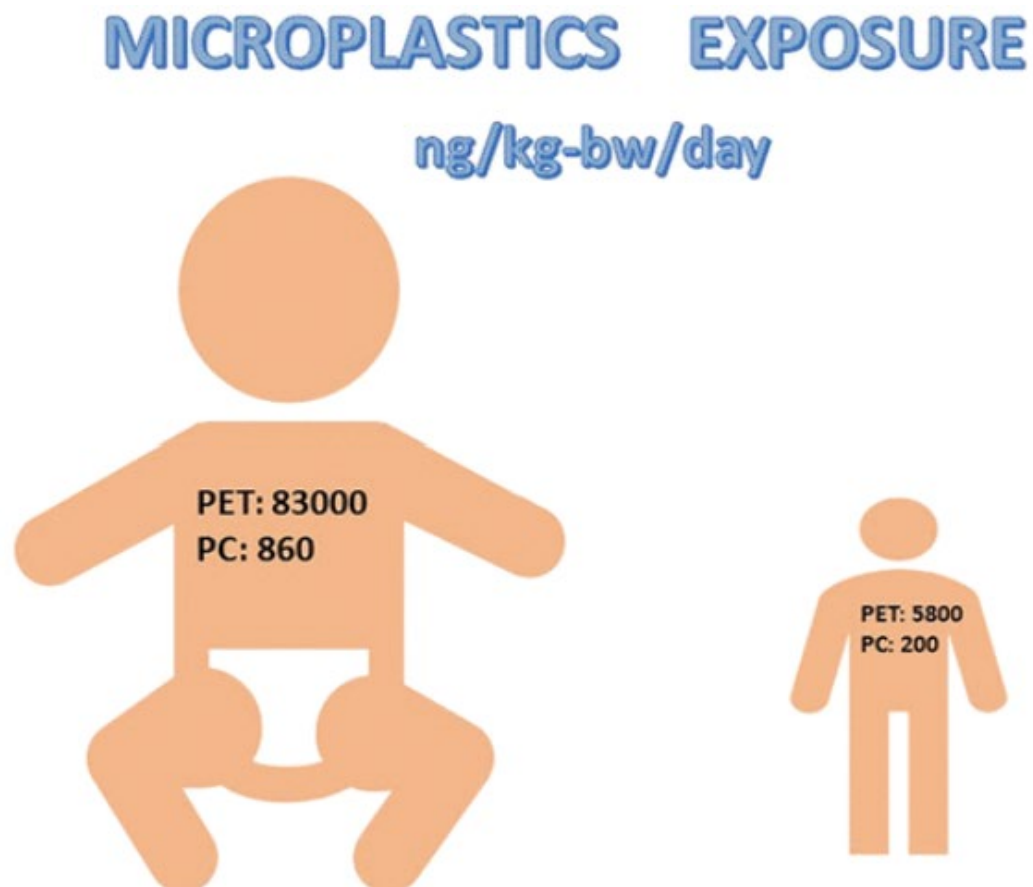
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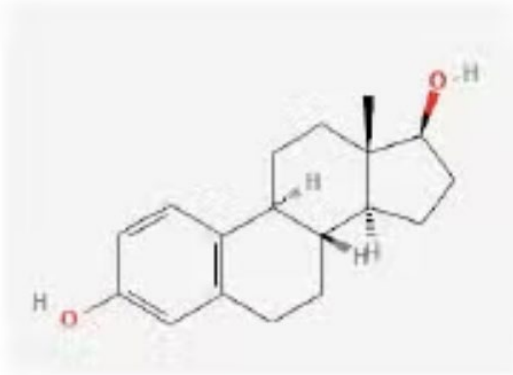
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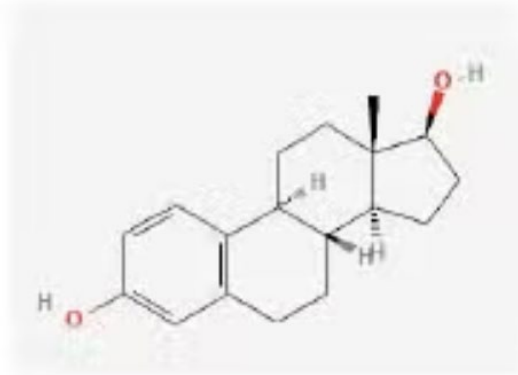
Bisphenol A is an Endocrine Disrupter

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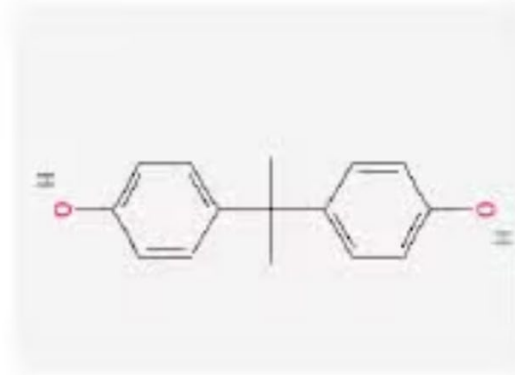


17beta-estradiol

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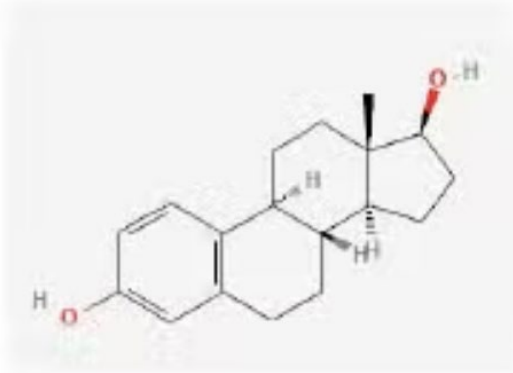


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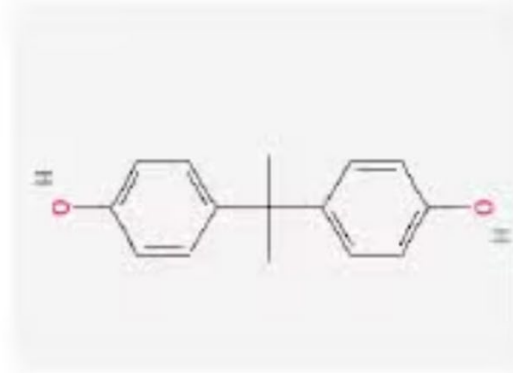


Bisphenol A

Bisphenol A is an Endocrine Disrupter



17beta-estradiol



Bisphenol A

Bisphenol A (BPA) looks like Estradiol





Experiment - Zebrafish – Male and Female Development with BPA Exposure



CONTROL

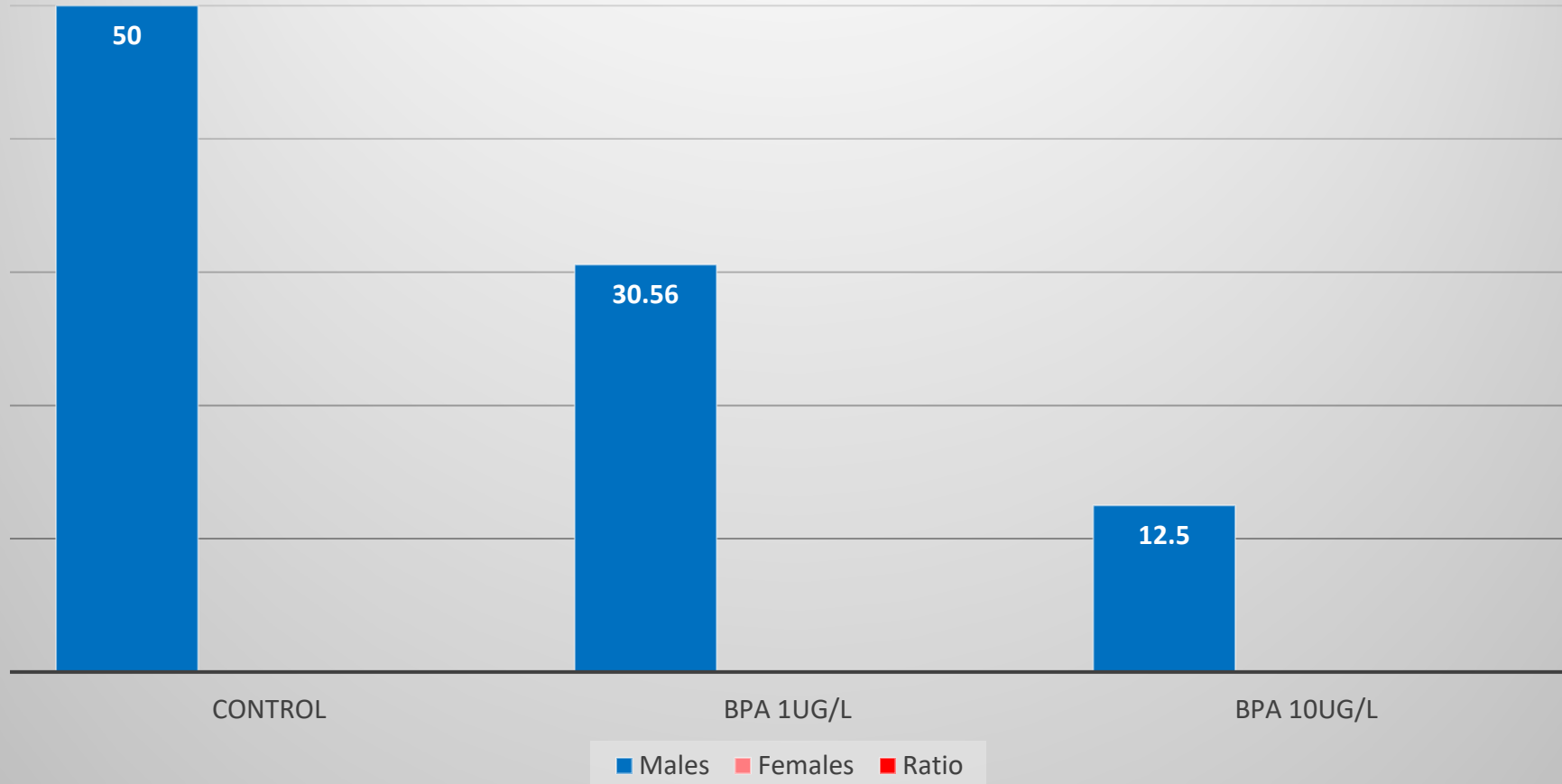
BPA 1UG/L

BPA 10UG/L

■ Males ■ Females ■ Ratio

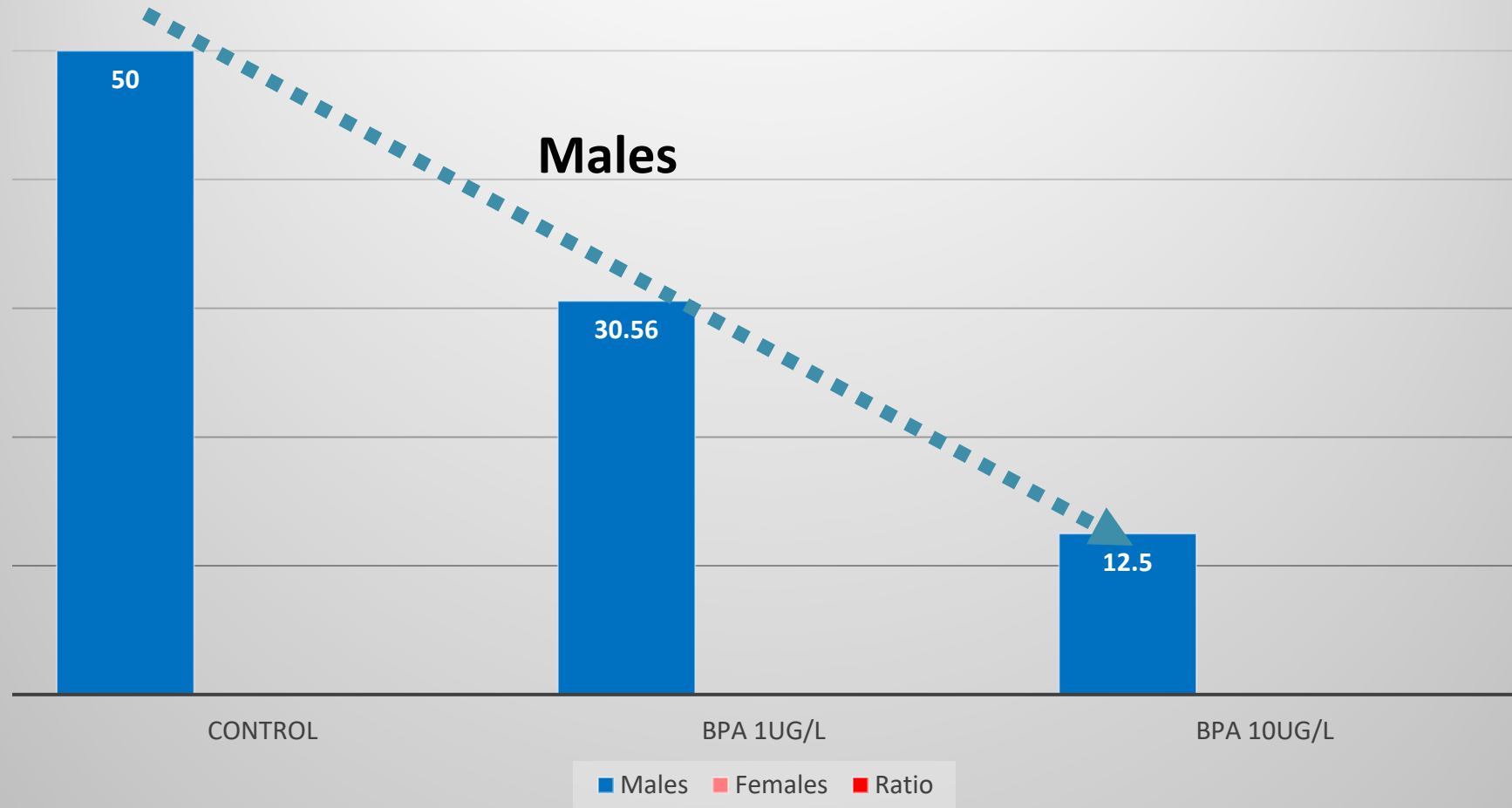


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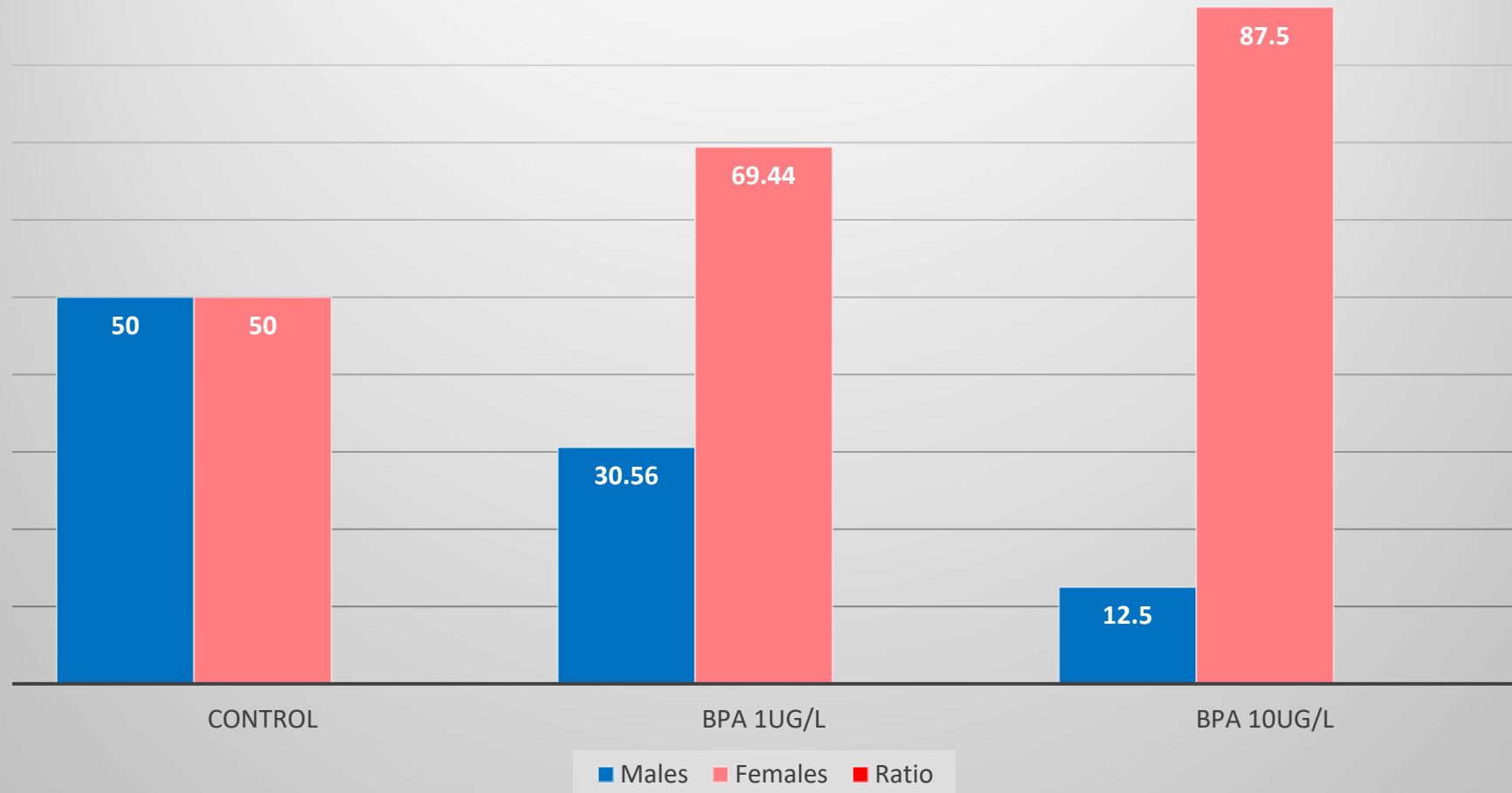


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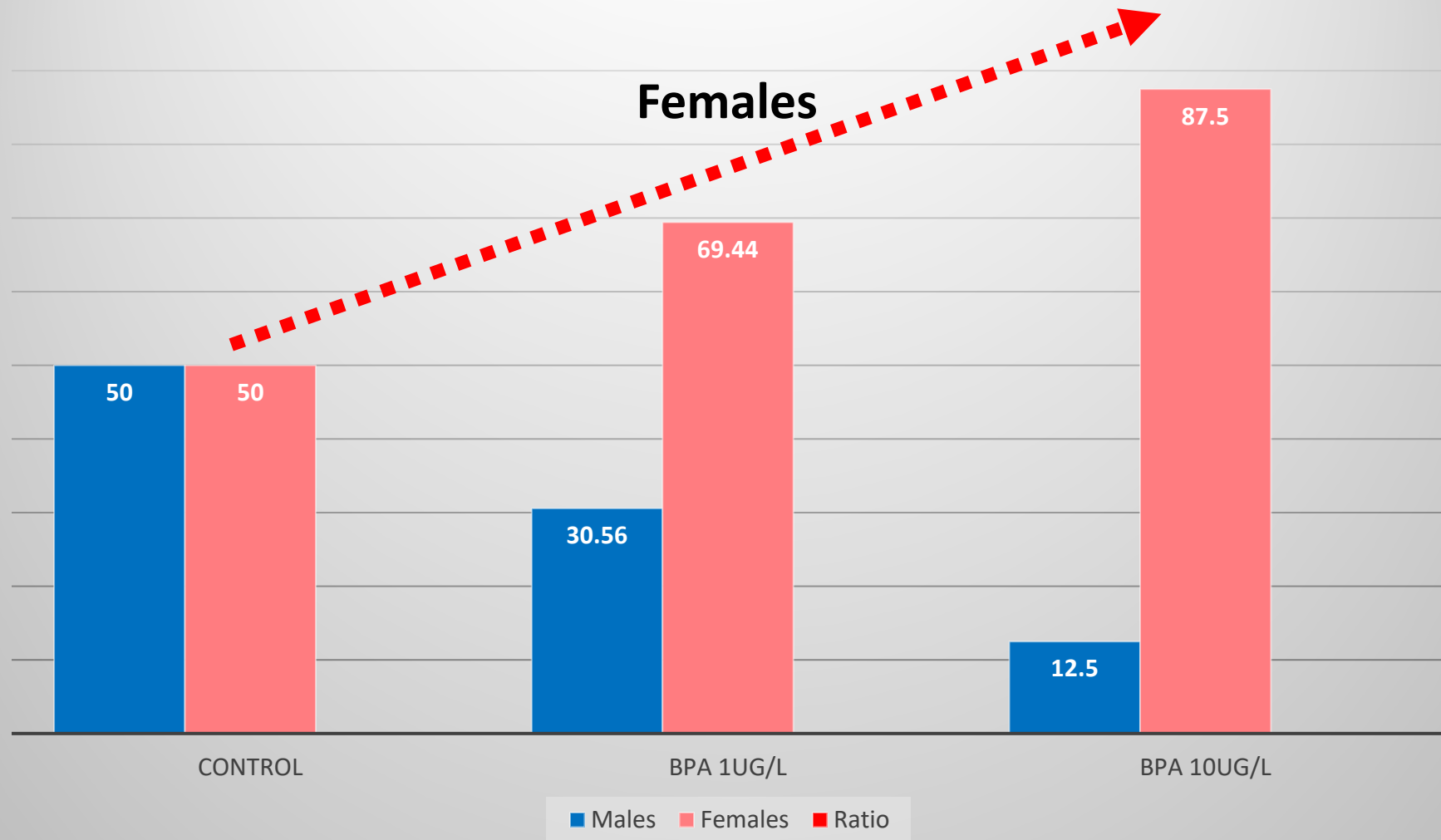


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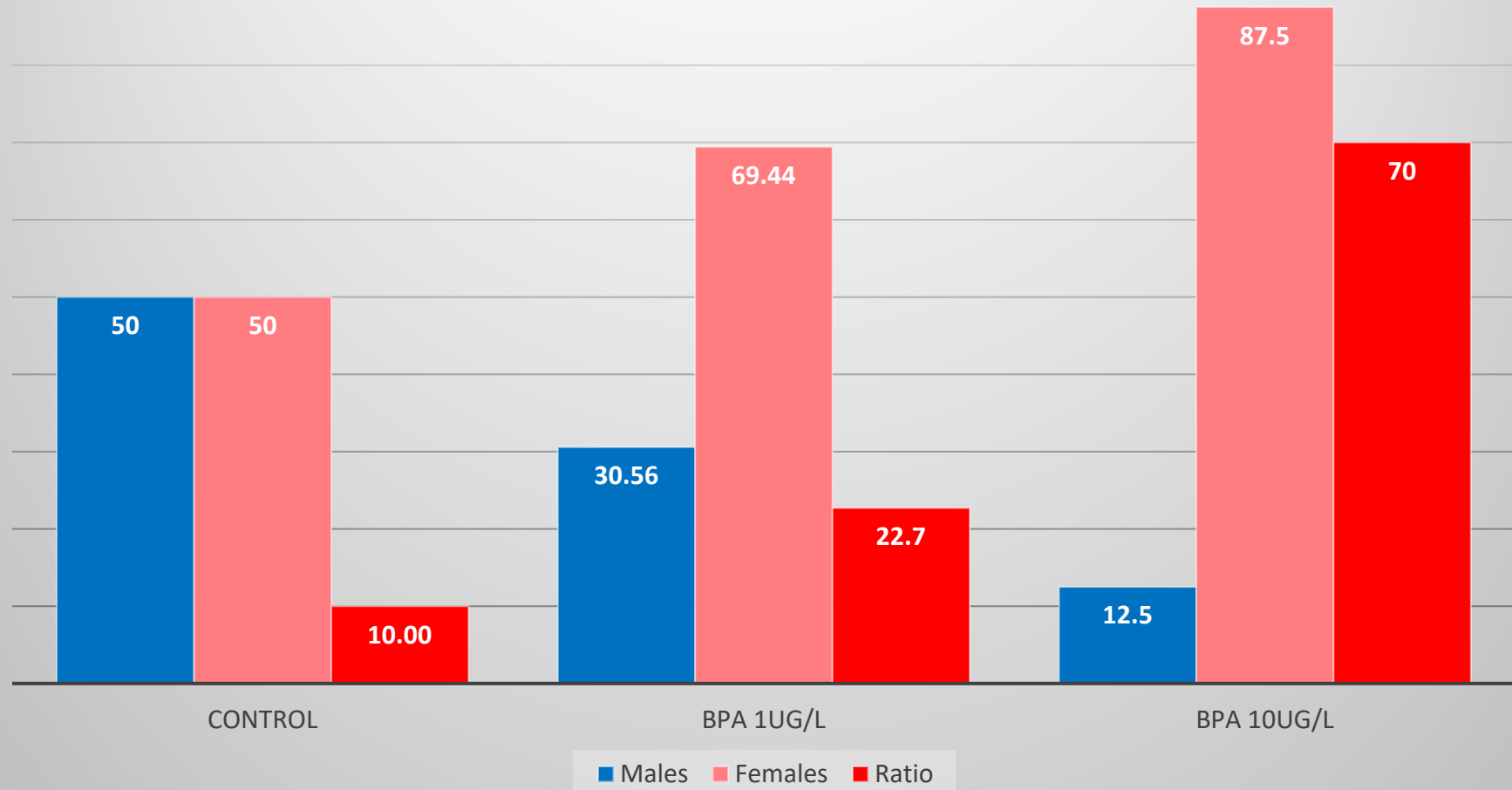


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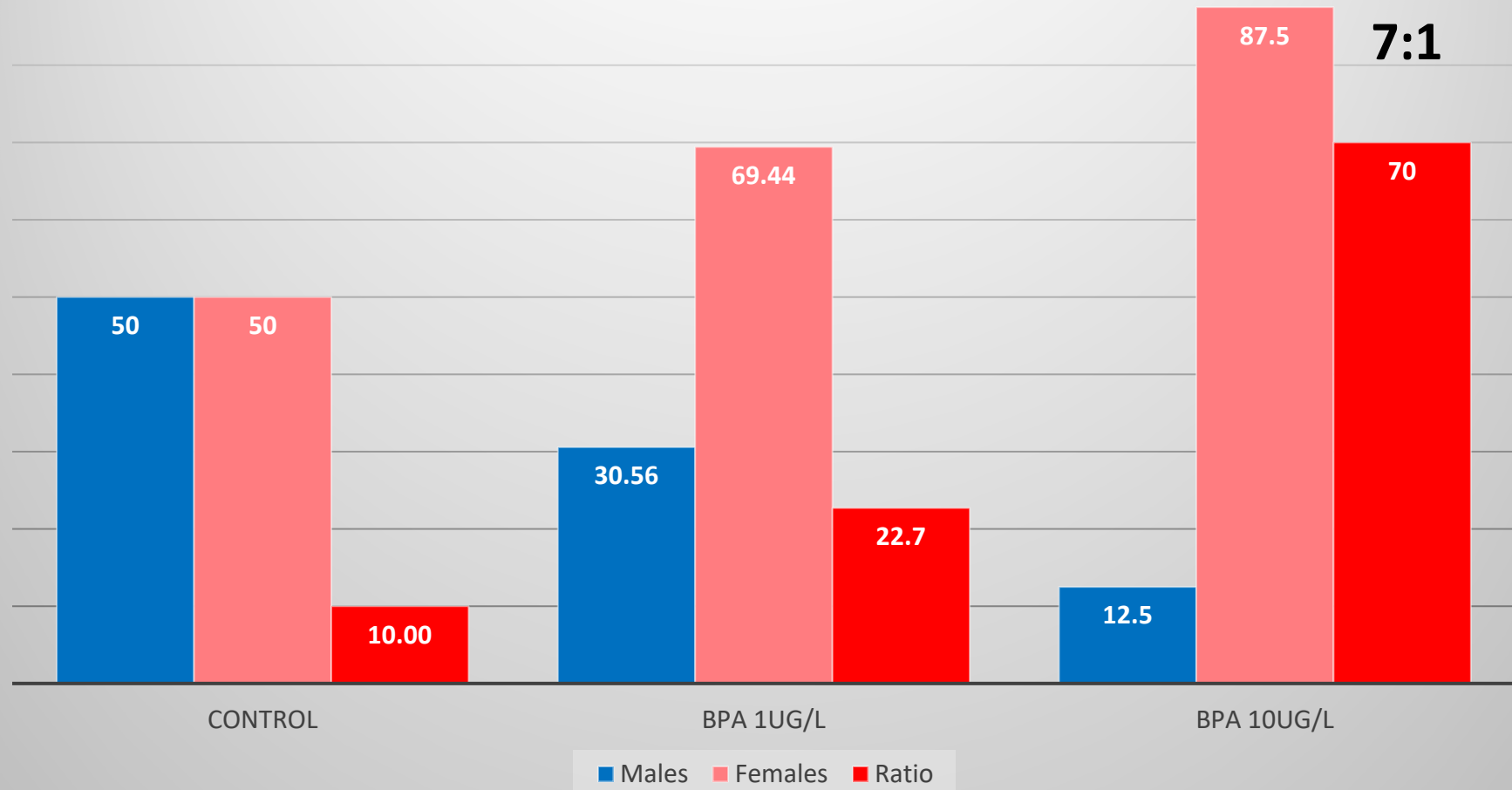


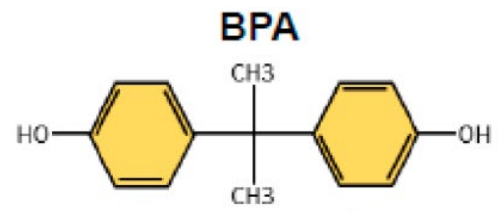
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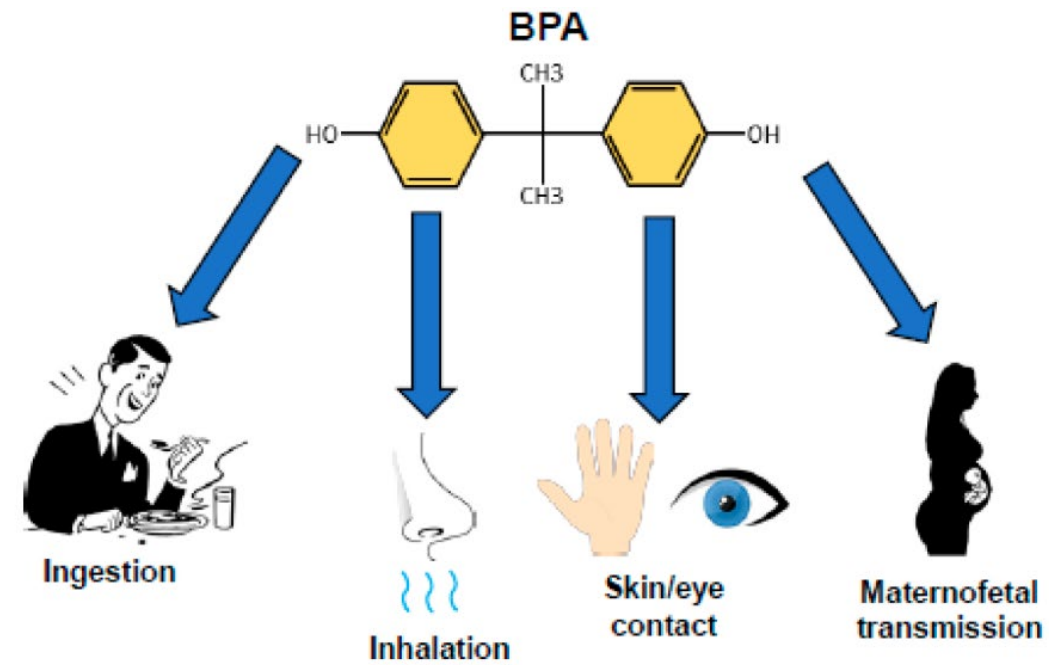


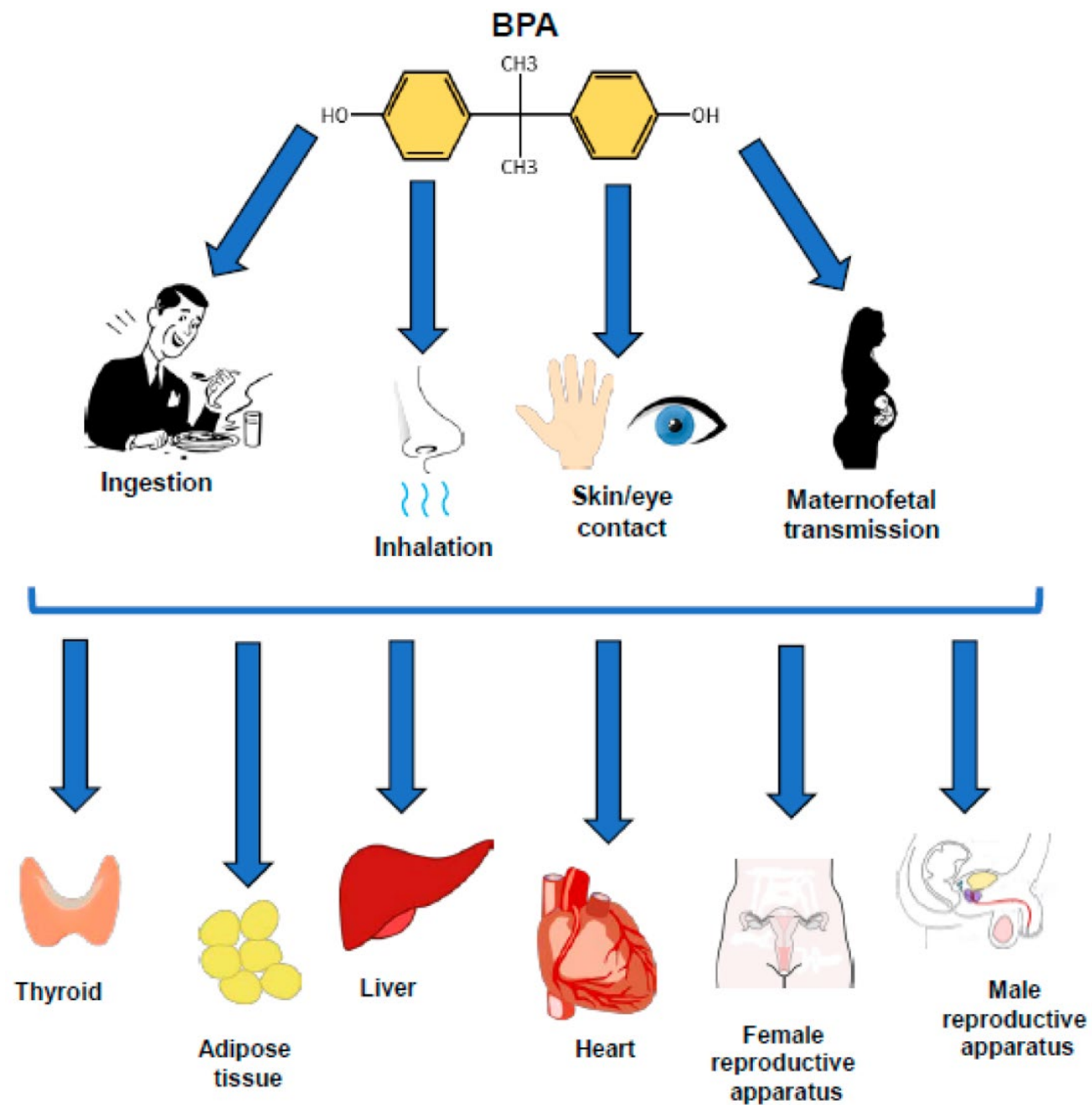


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Thermal Paper Receipts

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Thermal Paper Receipts



Thermal Paper Receipts

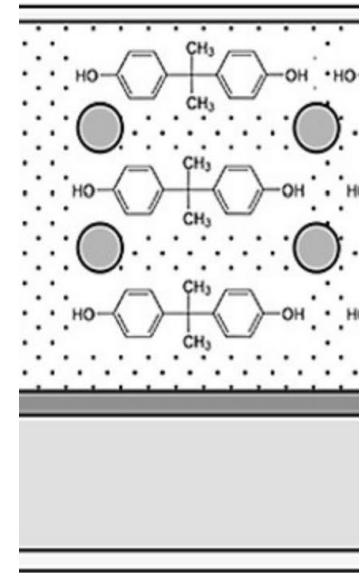
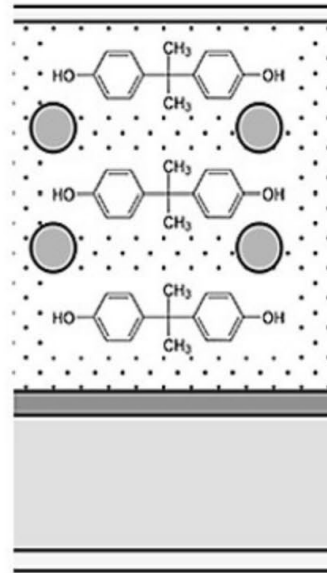
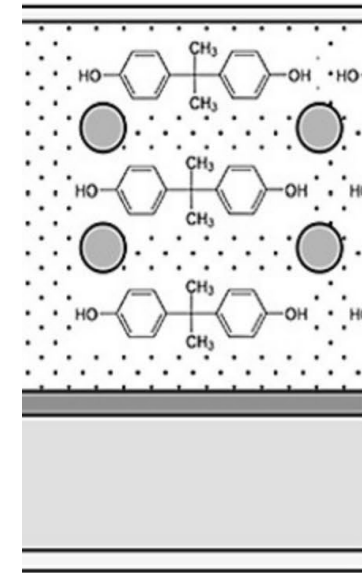
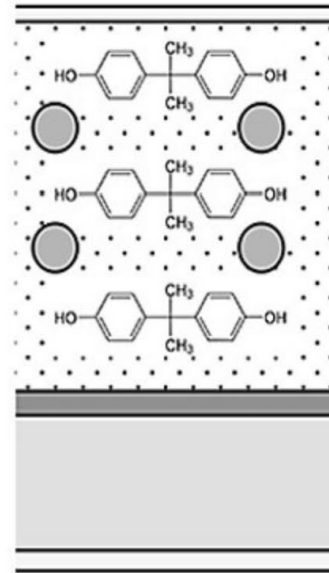


Figure 1: Thermal paper diagram (adapted from Hormann *et al.* 2014)

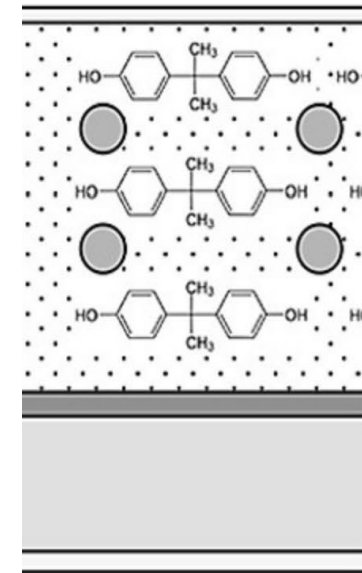
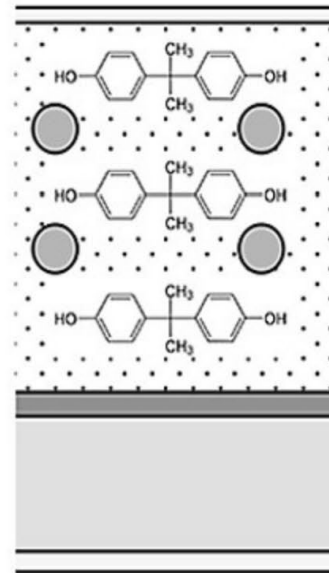
Thermal Paper Receipts



BPA

Figure 1: Thermal paper diagram (adapted from Hormann *et al.* 2014)

Thermal Paper Receipts



BPA

DYE

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Thermal Paper Receipts

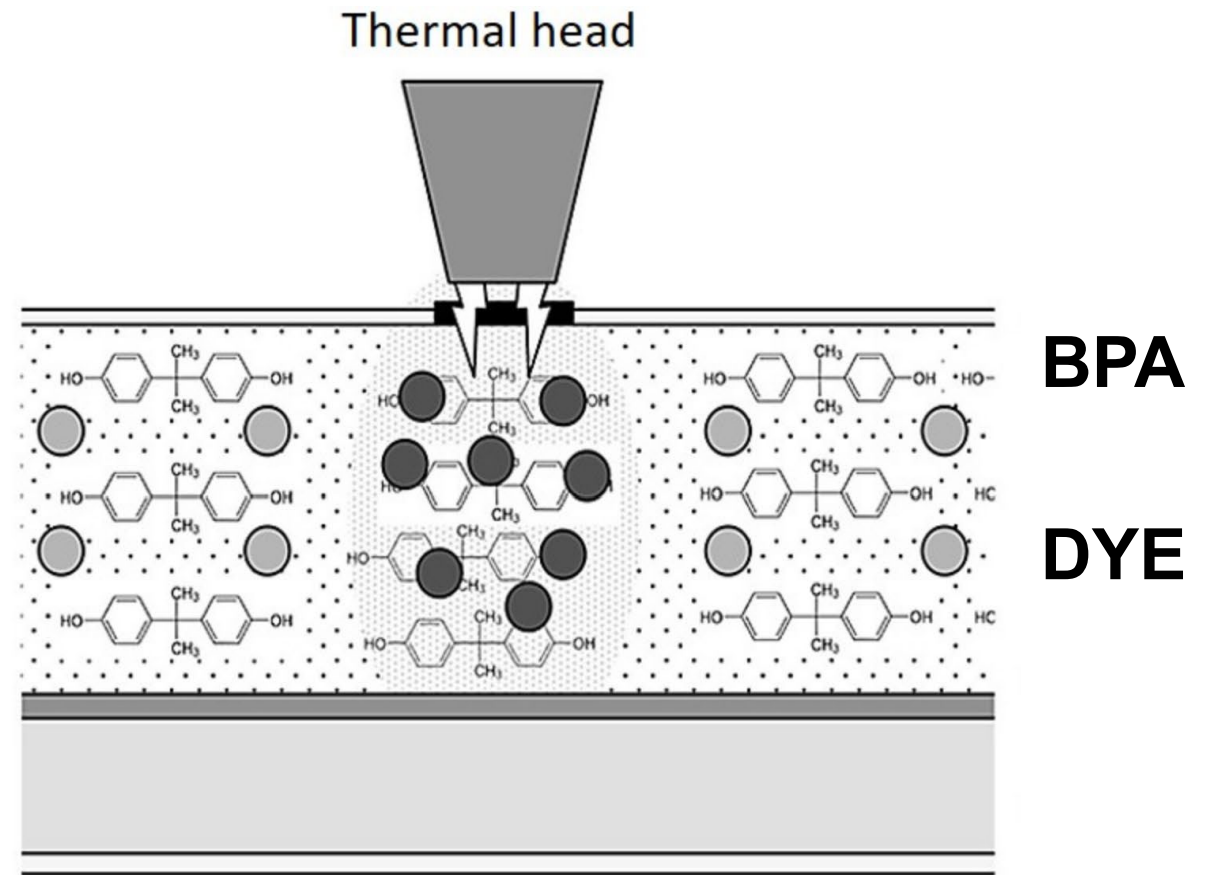
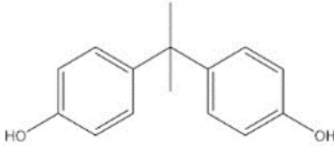
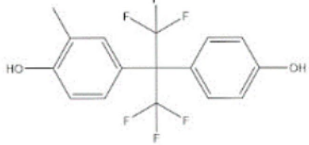
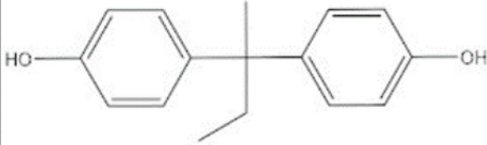
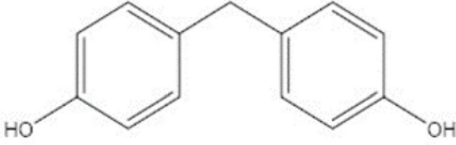
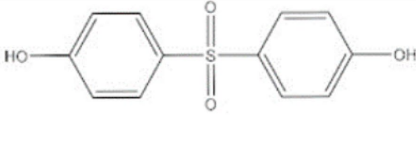
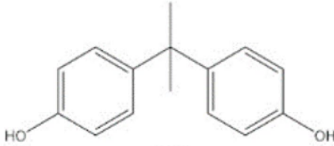
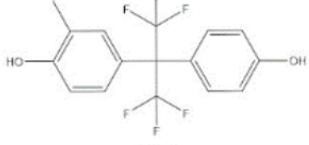
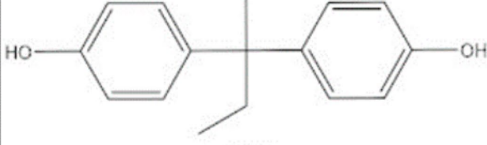
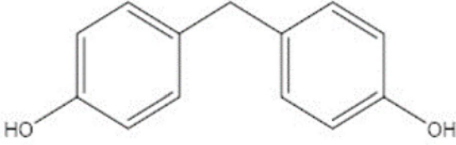
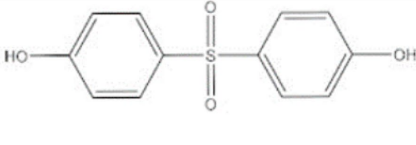
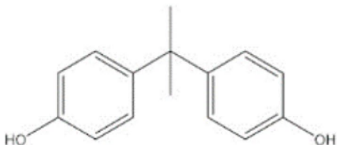
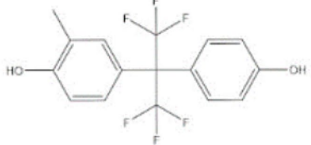
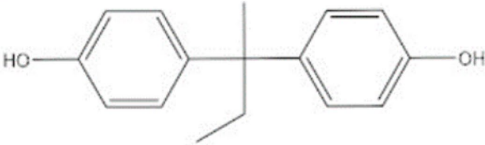
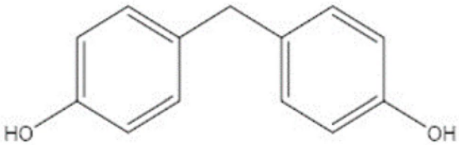
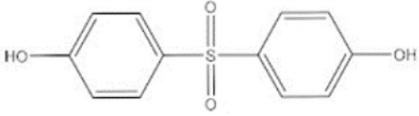
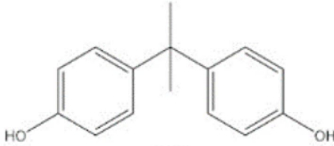
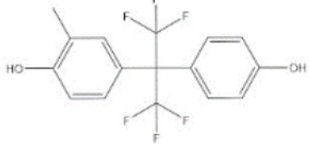
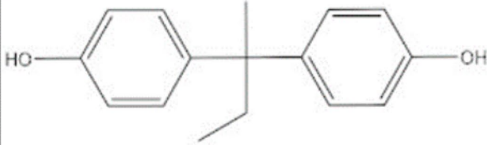
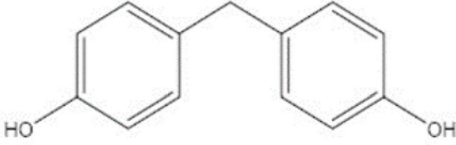
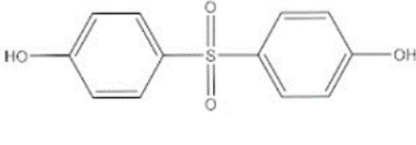


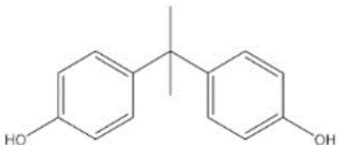
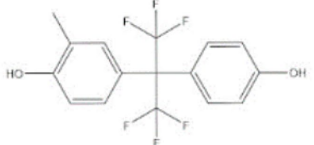
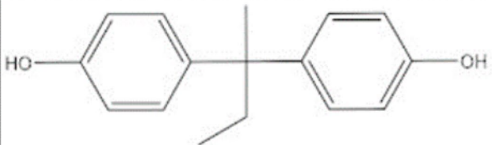
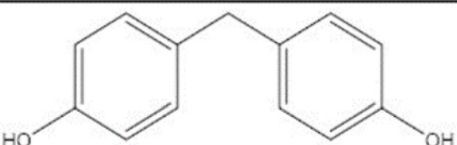
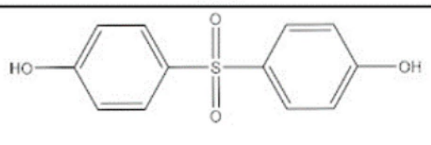
Figure 1: Thermal paper diagram (adapted from Hormann *et al.* 2014)

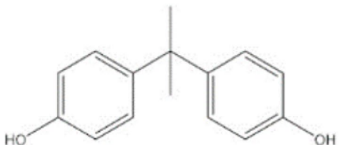
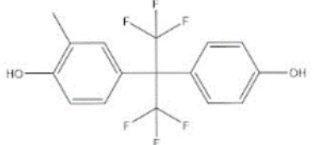
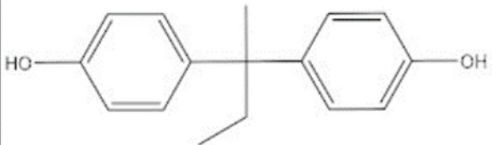
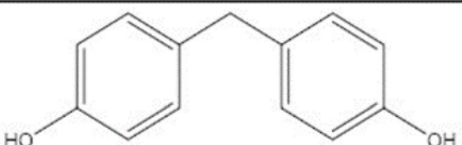
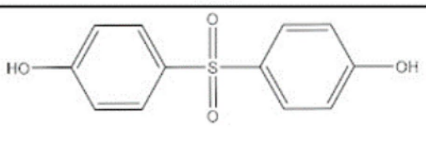
Bisphenol	Chemical Structure	Usage	Detection Matrices
BPA	 BPA	Hard plastic items (baby bottles, reusable water bottles, food containers, pitchers, tableware and other storage containers); polycarbonate plastic (eyeglass lenses, CDs, DVDs, computers, appliances, sports safety equipment); epoxy resin linings coat the inside of metal products (food cans, bottle tops and water supply pipes)	Air, dust, water, blood, urine, sediment, food, municipal sewage sludge
BPAF	 BPAF	Crosslinker (specialty fluoro-elastomers synthesis)	Food, dust, sediment, municipal sewage sludge
BPB	 BPB	Food-contact coatings, polymers	Food, dust, sediment, blood, urine
BPF	 BPF	Epoxy resins, polycarbonates (lining of solid/high built systems); thermal receipt	Food, dust, sediment, receipts, urine, PCP, municipal sewage sludge
BPS	 BPS	Wash fastening agent, electroplating solvent, thermal receipt papers	Blood, food, dust, sediment, receipts, urine

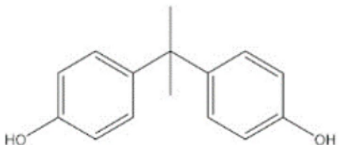
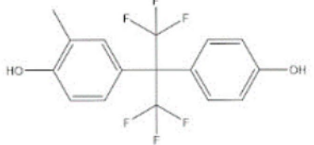
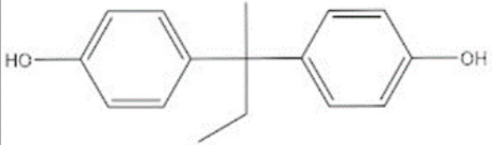
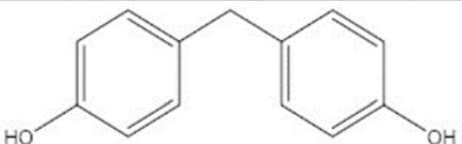
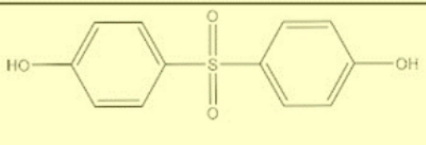
Bisphenol	Chemical Structure	Usage	Detection Matrices
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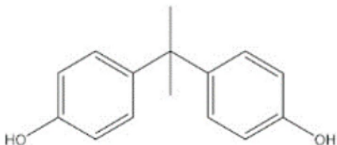
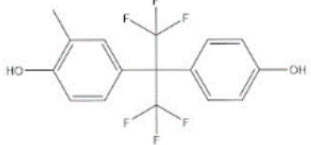
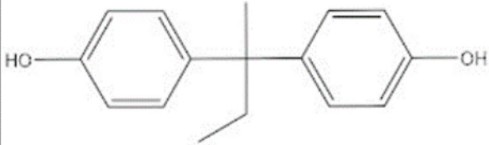
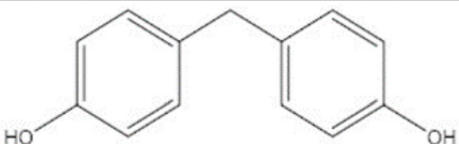
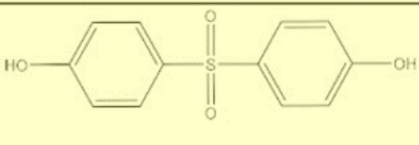
Bisphenol	Chemical Structure	Usage	Detection Matrices
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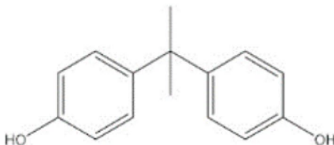
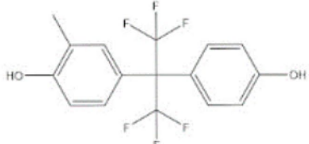
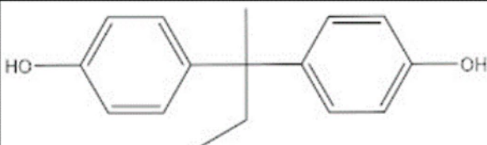
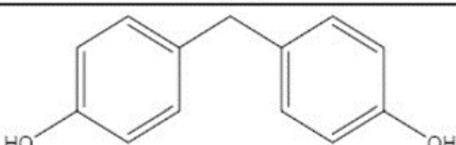
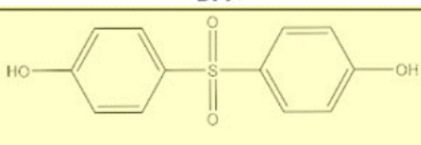
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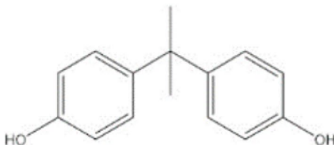
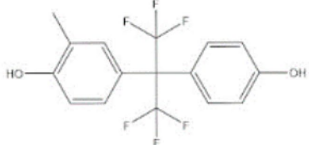
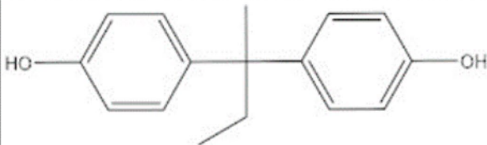
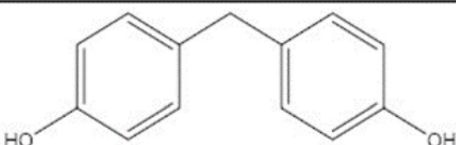
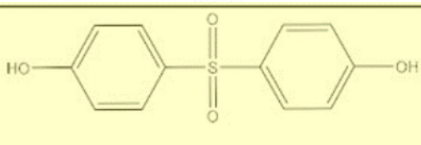
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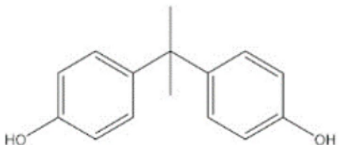
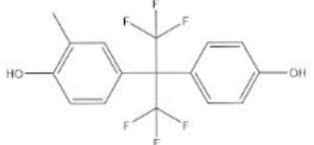
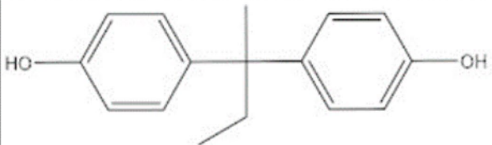
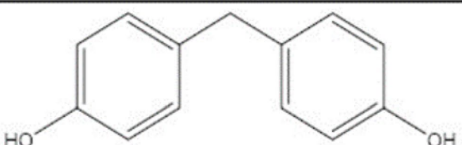
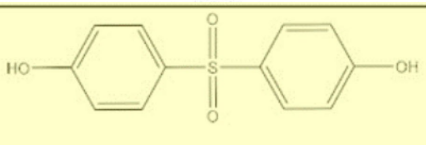
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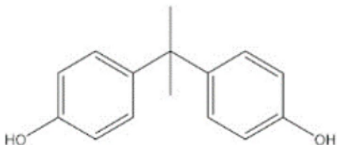
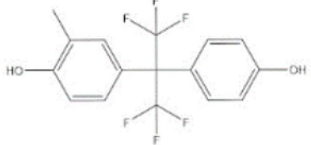
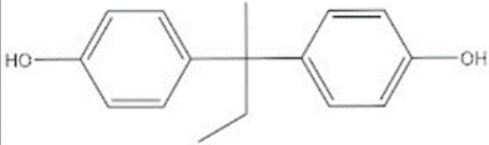
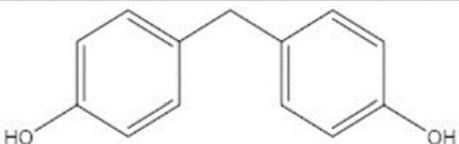
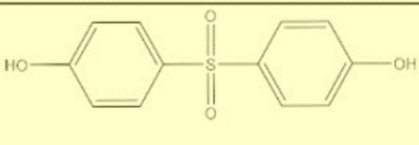
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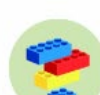
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PLASTIC BY THE NUMBERS



Plastic code	Examples:		
 PETE	 Beverage bottle	 Water bottle	 Cleaning product bottle
 HDPE	 Laundry detergent container	 Bucket	 Shampoo bottle
 PVC	 Credit cards	 IV fluid bags and tubing	 Plumbing pipes
 LDPE	 Frozen food bags and pouch	 Plastic shopping bag	 Bread bag
 PP	 Medicine bottle	 Yogurt container & single-use plastic spoon	 Straws
 PS	 Single-use plastic utensils	 To-go coffee cup	 Take-out food container
 OTHER	 Electronics: Keyboard & Mouse	 Glasses frame	 Plastic brick toys

PLASTIC BY THE NUMBERS



Plastic code

Examples:



PETE



Beverage bottle



Water bottle



Cleaning product



HDPE



Laundry detergent container



Bucket



Shampoo bottle



PVC



Credit cards



IV fluid bags and tubing



Plumbing pipes



LDPE



Frozen food bags and pouch



Plastic shopping bag



Bread bag



PP



Medicine bottle



Yogurt container & single-use plastic spoon



Straws



PS



Single-use plastic utensils



To-go coffee cup



Take-out food container



OTHER



Electronics: Keyboard & Mouse



Glasses frame



Plastic brick toys

PLASTIC BY THE NUMBERS



Plastic code

Examples:



PETE



Beverage bottle



Water bottle



Cleaning product



HDPE



Laundry detergent container



Bucket



Shampoo bottle



PVC



Credit cards



IV fluid bags and tubing



Plumbing pipes



LDPE



Frozen food bags and pouch



Plastic shopping bag



Bread bag



PP



Medicine bottle



Yogurt container & single-use plastic spoon



Straws



PS



Single-use plastic utensils



To-go coffee cup



Take-out food container



OTHER



Electronics: Keyboard & Mouse



Glasses frame

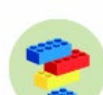


Plastic brick toys



PLASTIC BY THE NUMBERS



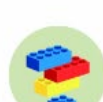
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Is PET Plastic Safe?

PLASTIC BY THE NUMBERS



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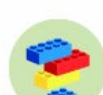


Is PET Plastic Safe?

Often dubbed the “**safe plastic**,” PET has been thoroughly tested and is used in countless food and beverage applications worldwide. Here are some of the key reasons why PET is considered one of the safest options on the market:

PLASTIC BY THE NUMBERS



Plastic code	Examples:		
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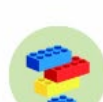
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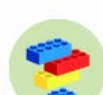
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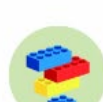
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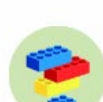
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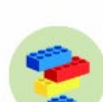
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PET = polyethylene terephthalate

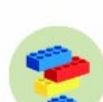
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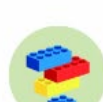
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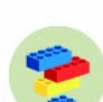
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Mimics Estrogen

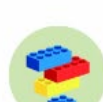
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Mimics Estrogen
Endocrine Disruptor

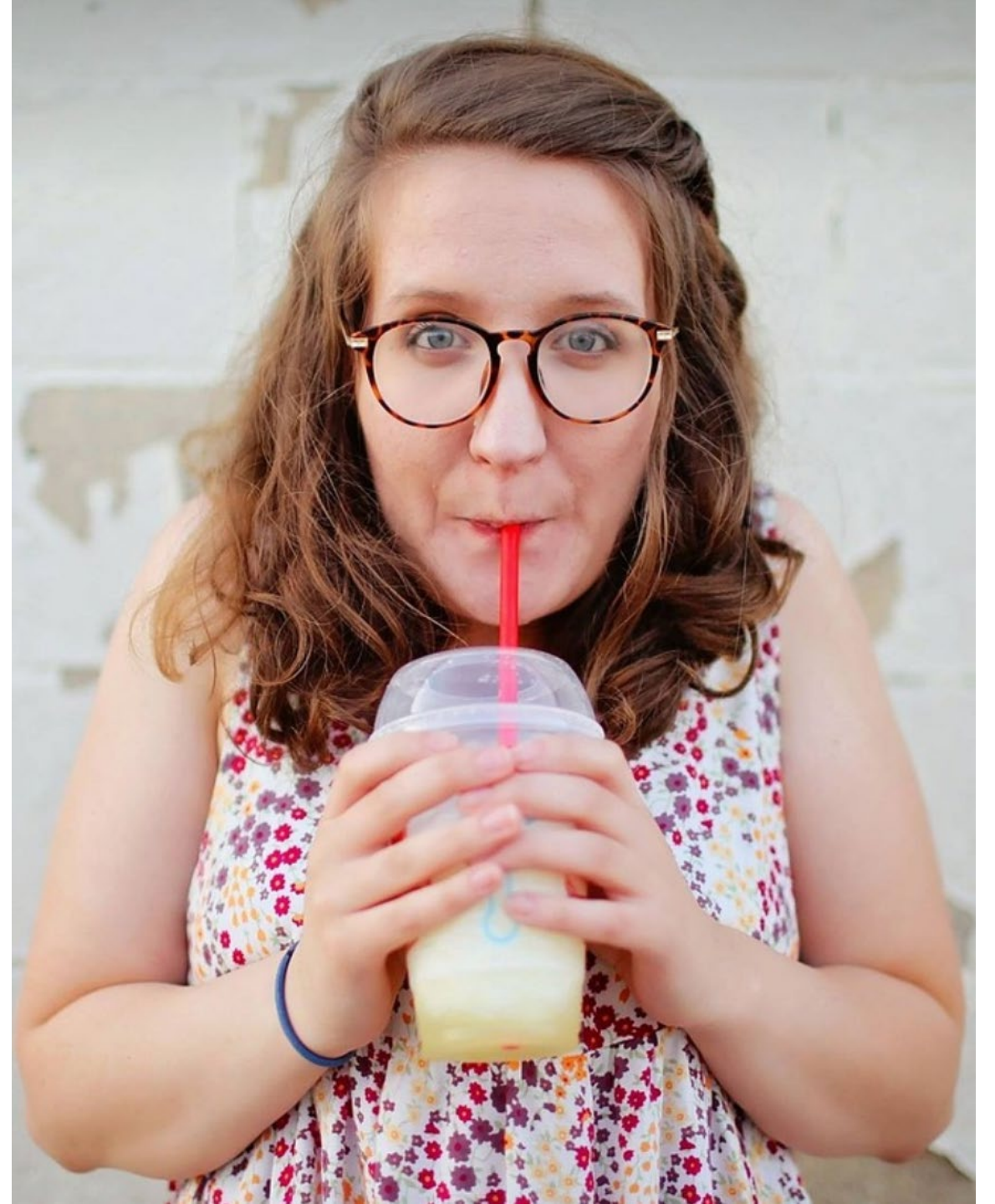
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Who has more microplastic?
Who has more endocrine disruptors?











Reduce:





Reduce:

- Plastic water bottles



Reduce:

- Plastic water bottles
- Tea Bags with plastic



Reduce:

- Plastic water bottles
- Tea Bags with plastic
- Plastic containers + Heat



Reduce:

- Plastic water bottles
- Tea Bags with plastic
- Plastic containers + Heat
- Cooking – Teflon, Plastic



Reduce:

- Plastic water bottles
- Tea Bags with plastic
- Plastic containers + Heat
- Cooking – Teflon, Plastic
- Veg from Sewage Sludge



Reduce:

- Plastic water bottles
- Tea Bags with plastic
- Plastic containers + Heat
- Cooking – Teflon, Plastic
- Veg from Sewage Sludge
- Wash hands before eating



Reduce:

- Plastic water bottles
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Use



Reduce:

- Plastic water bottles
- Tea Bags with plastic
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- Cooking – Teflon, Plastic
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Use

- Glass



Reduce:

- Plastic water bottles
- Tea Bags with plastic
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- Cooking – Teflon, Plastic
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Use

- Glass
- Stainless Steel



Reduce:

- Plastic water bottles
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Dryer



Reduce:

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Use

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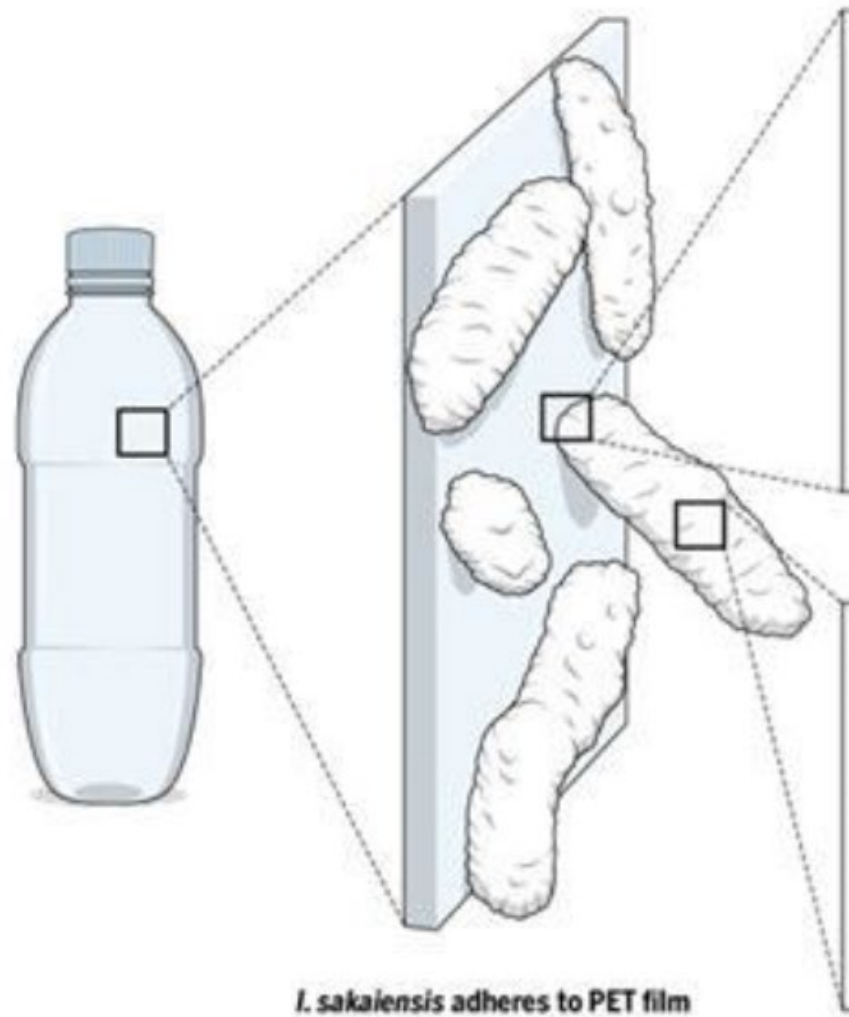
Dryer

- Lint Trap

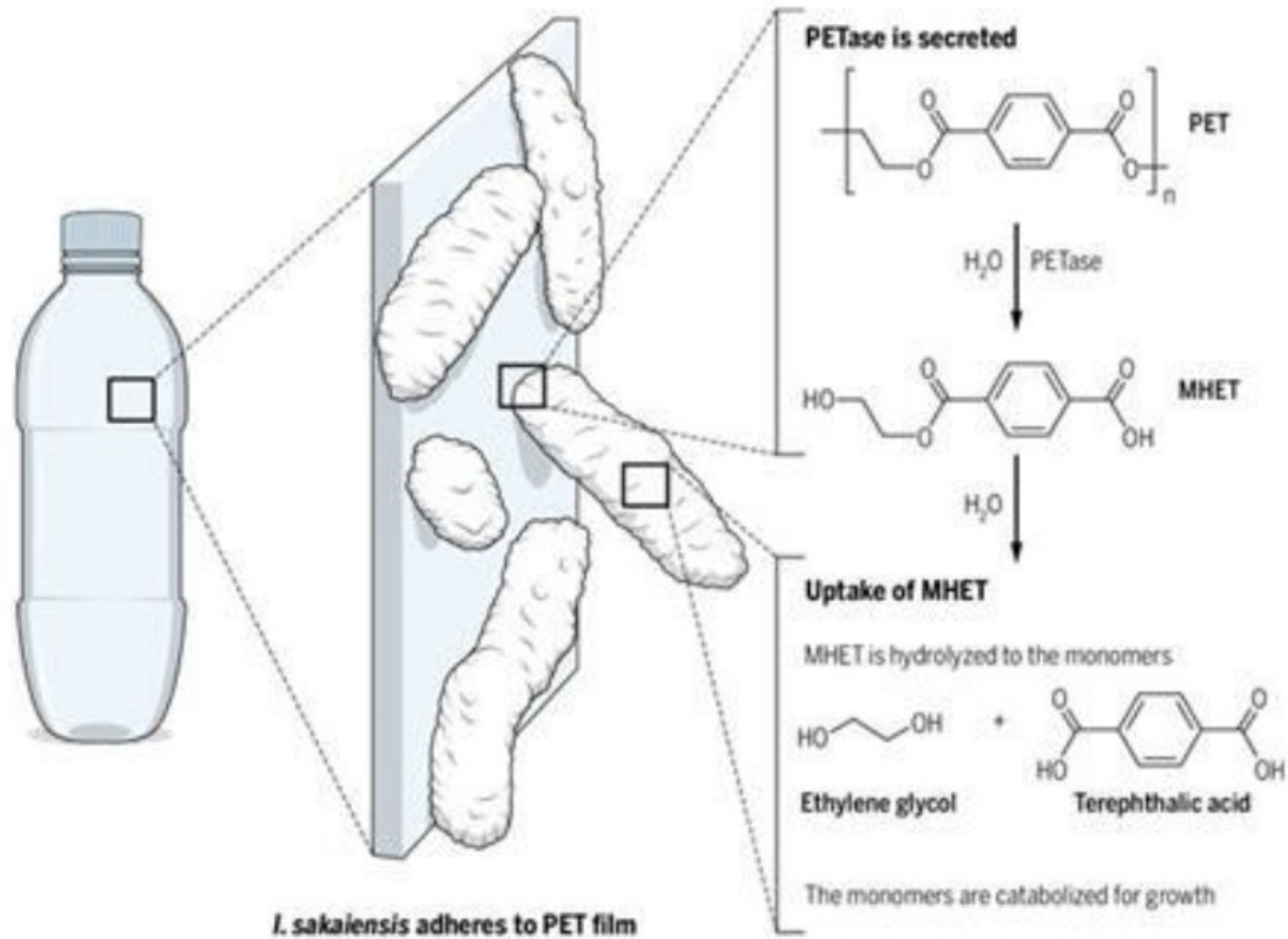
There is hope – Bacteria that breakdown Plastic



There is hope – Bacteria that breakdown Plastic



There is hope – Bacteria that breakdown Plastic



Thanks for Staying Awake



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