

PEROXYSONES

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Inserm UMR-S-1193

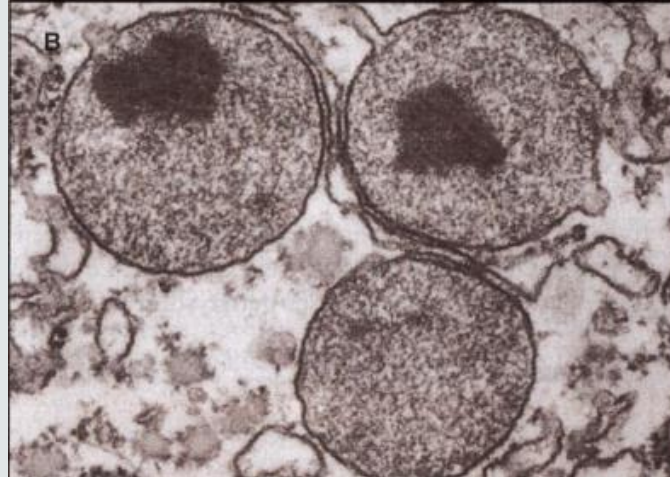
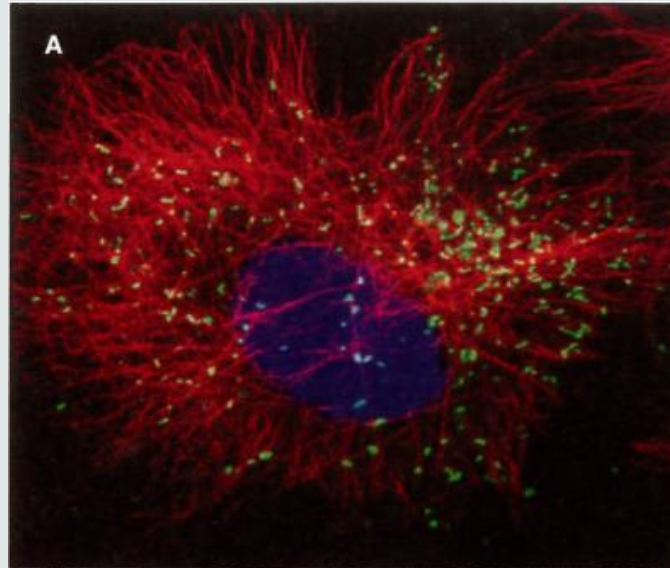
Faculté de Pharmacie - Châtenay-Malabry

Organisation et structure

Microtubules

Peroxisomes

Noyau



- Une seule membrane
- Pas d'ADN
- Indépendants du trafic vésiculaire
- Lumière : oxydases (catalase, urate oxydase...)

Biogenèse et dynamique des peroxysomes : peroxynes

Groups	Peroxisins	Functions	Diseases
Peroxisome Matrix Protein Import			
	PEX5	PTS1 receptor and channel	NALD, ZS
	PEX13, PEX14, PEX17, PEX33	Membrane docking complex for PEX5	NALD, ZS
	PEX8 (PEX23)	Membrane partners of PEX5 & PEX14	
	PEX7	PTS2 receptor	RCDP
	PEX18, PEX20, PEX21	PTS2 coreceptors with PEX7	
Recycling Matrix Import Machinery			
	PEX1, PEX6	AAA ATPases for recycling PEX5	IRD, NALD, ZS
	PEX15, PEX26	Membrane anchors for PEX1 & PEX6	
	PEX2, PEX4, PEX10, PEX12	Ubiquitin-conjugating enzyme for cycling PEX5	IRD, NALD, ZS
	PEX22	Membrane anchor for PEX4	
Peroxisome Membrane Protein Import			
	PEX19	Cytoplasmic PMP receptor & chaperone	ZS
	PEX3 (PEX16)	Membrane receptor for imported protein	IRD, ZS
Peroxisome Biogenesis From Endoplasmic Reticulum			
	PEX16	Recruits PMPs from ER membrane	ZS
	PEX23, PEX30	Regulate de novo peroxisome formation	
	PEX25	Recruits Rho1	
Peroxisome Fusion and Fission			
	PEX11, PEX25, PEX27, PEX34	Regulate membrane elongation & fission	Mild ZS
	PEX1, PEX6	AAA ATPases membrane fission & fusion	IRD, NALD, ZS

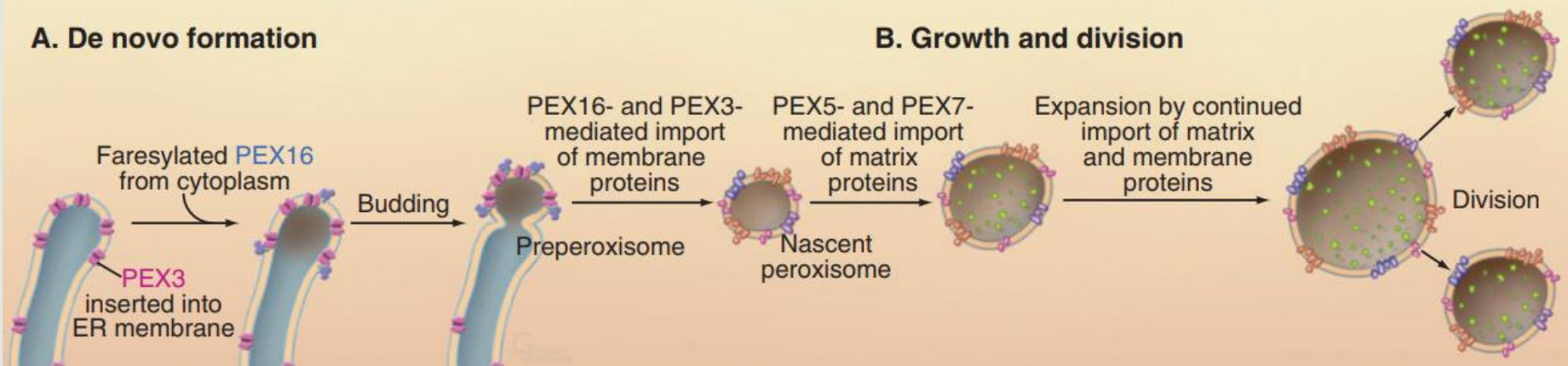
ATPase, adenosine triphosphatase; ER, endoplasmic reticulum; IRD, infantile Refsum disease; NALD, neonatal adrenoleukodystrophy; PBD, peroxisome biogenesis disorder; PMP, peroxisome membrane protein; PTS1/PTS2, peroxisomal targeting signal type 1/type 2; RCDP, rhizomelic chondrodysplasia punctate; ZS, Zellweger syndrome.

For reference, see Smith JJ, Aitchison JD. Peroxisomes take shape. *Nat Rev Mol Cell Biol.* 2013;14:803–817.

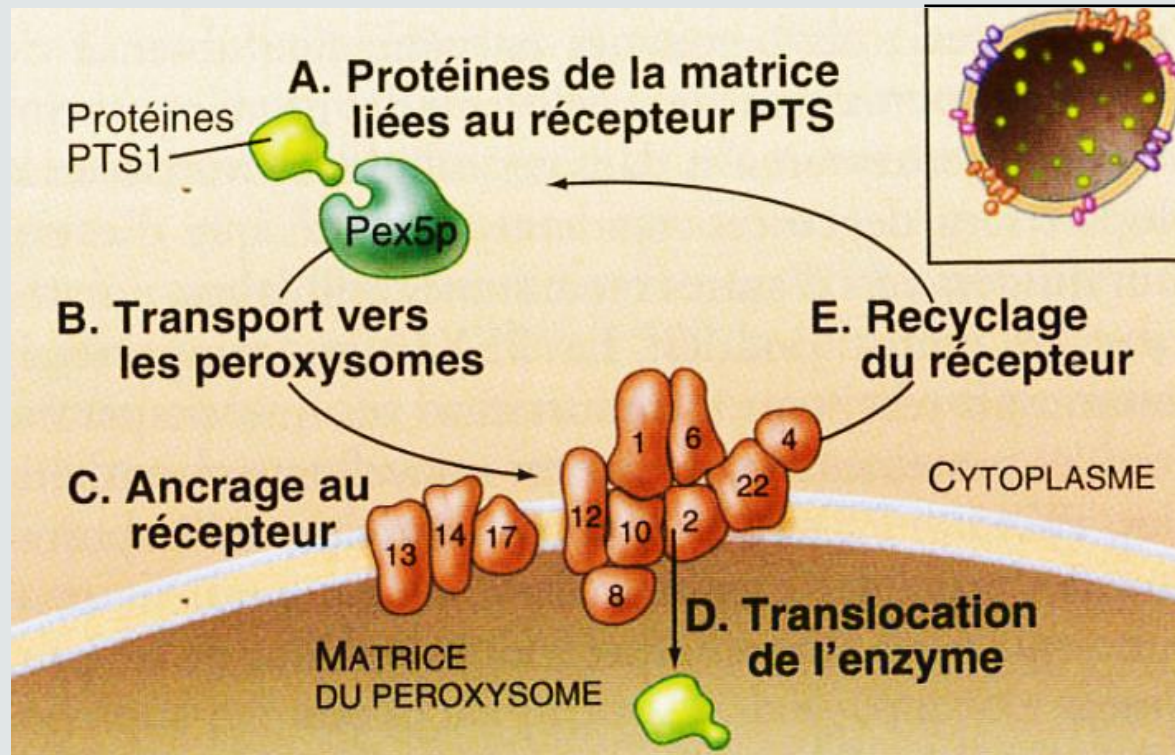
Dynamique des peroxysomes

A. De novo formation

B. Growth and division



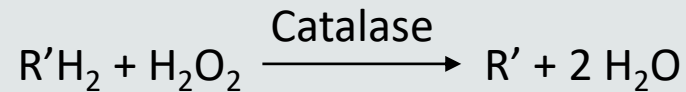
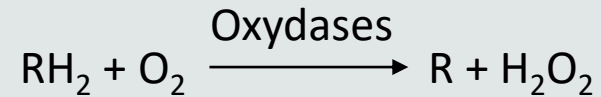
Import des protéines peroxysomales



Biologie Cellulaire, T. Pollard, W. Earnshaw, Elsevier

PTS-1 (peroxisomal targeting signal 1) : séquence d'adressage aux peroxysomes présente à l'extrémité C-ter des protéines **Ser-Lys-Leu-COOH**

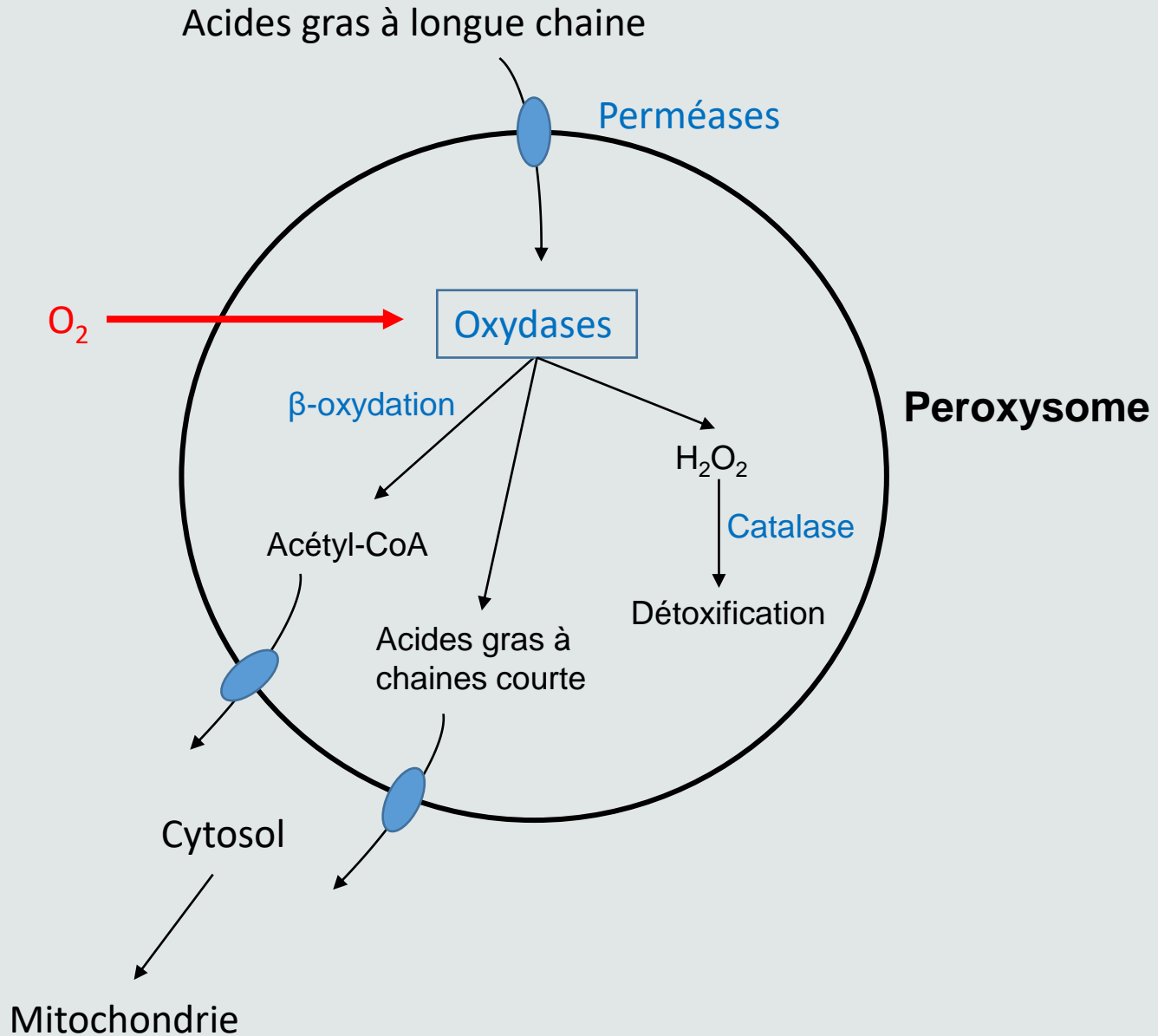
Fonction des peroxysomes



Détoxification (foie, reins) : R'H2 = Phénols, formaldéhydes, alcool



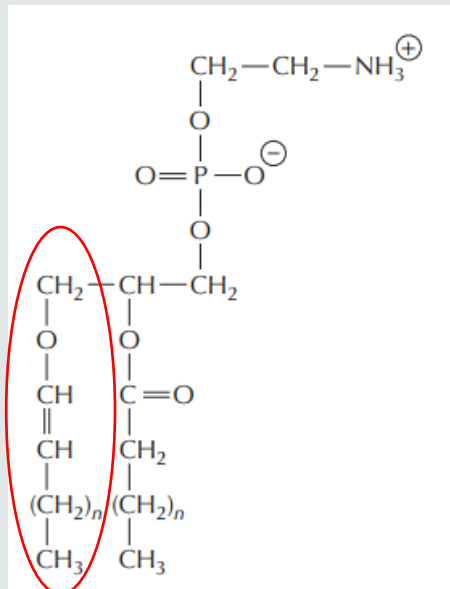
Fonction des peroxysomes



Fonction des peroxysomes

Synthèse des plasmalogènes

Plasmalogène



→ **Myéline (80-90%)**