

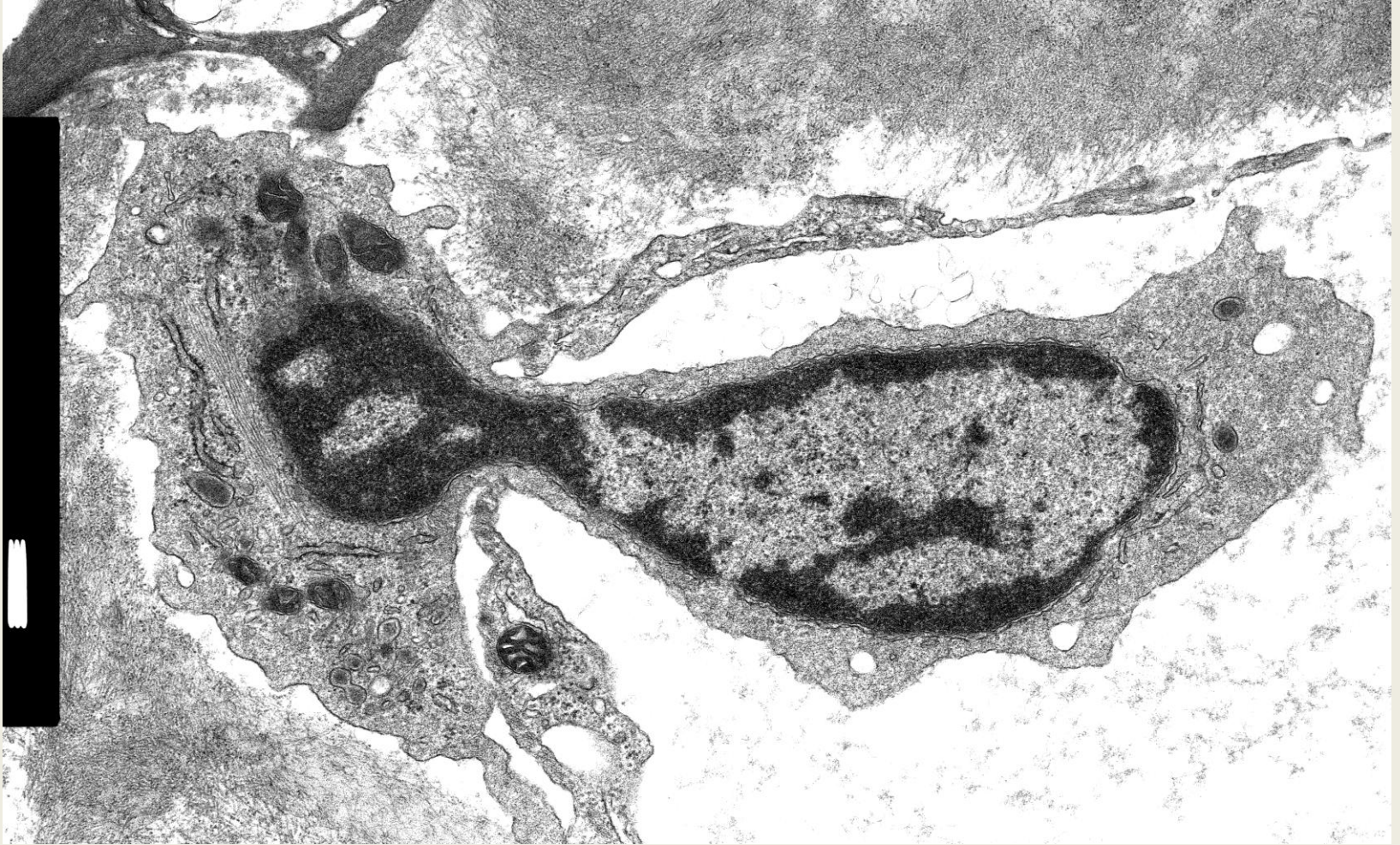
CÉLULA

UNIDADE FUNDAMENTAL DA
ESTRUTURA, FUNÇÃO E
ORGANIZAÇÃO DA BIOLOGIA

CULTURA CEREBELO RATO (Leeds 1965)



CÉLULA CAPILAR GLOMÉRULO RENAL



Neg 7167 500nm

SAP HFF 2011

MICROSCOPIA ELECTRÓNICA

Biópsias renais HFF 36

Biópsias renais Ext. 13

Cilios 8

Outras amostras 6

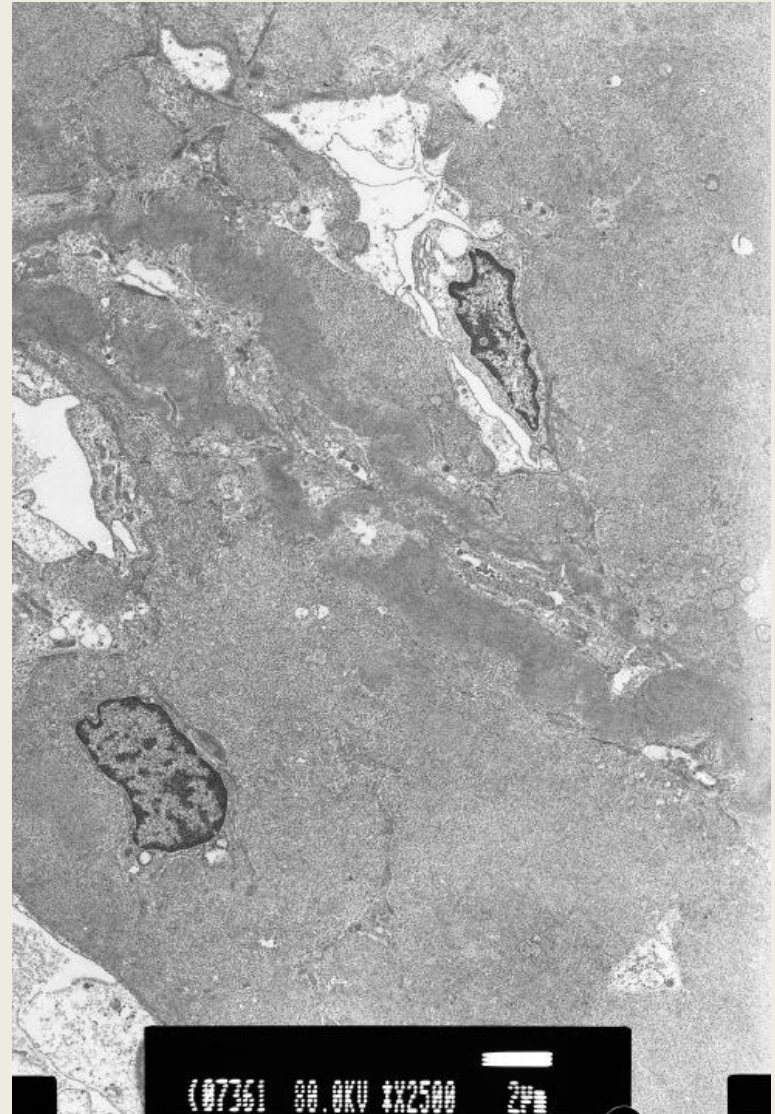
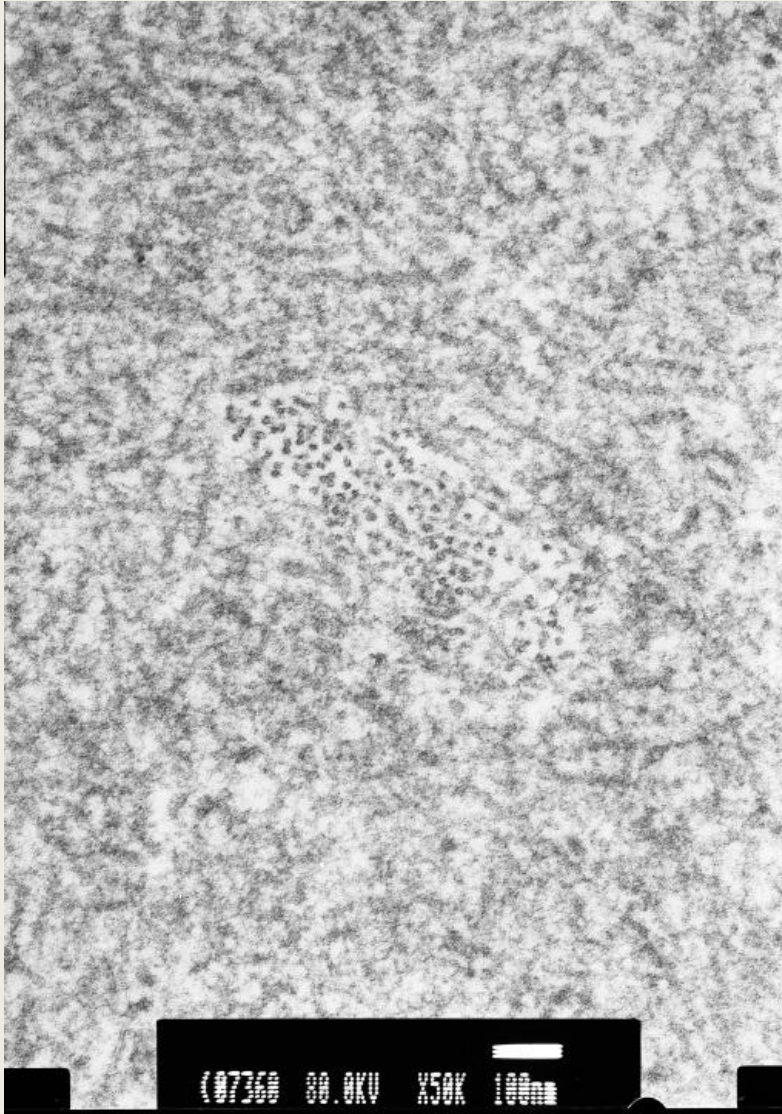
ME BIOPSIAS RENAIS 2011 SAP HFF DIAGNÓSTICOS (44/49)

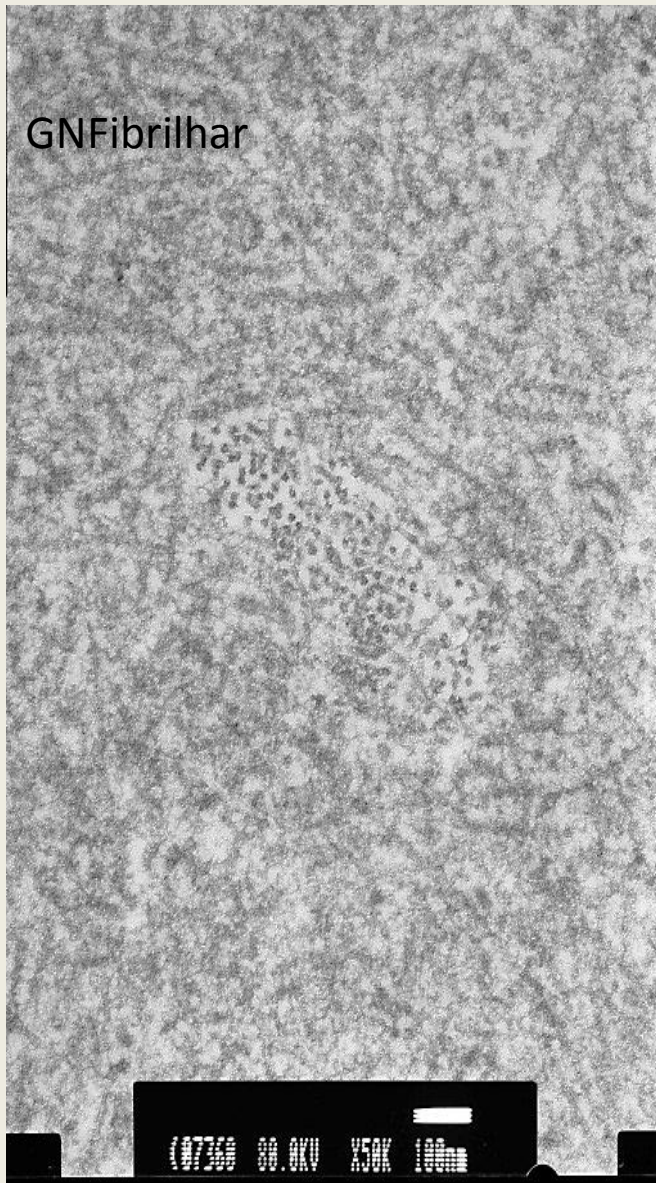
| | |
|---|---|
| 6 | GN Lesões mínimas (3E) |
| 4 | GEFS (1E)-- GN IgA (1E)-- Nefroesclerose |
| 3 | Amiloide-- GN Membranosa-- Nefropat. Cilindros-- Nefropat. HIV |
| 2 | Diabetes--Nefrite intersticial-- GN Lupica--GN Mesangial |
| 1 | GN S. Henoch-- GN Fibrilhar--?S.Alport --GN Mesangiocapilar— Poliarterite mic.--GN Proliferativa (1E) |
| 5 | Amostras do Exterior não representativas da M.Optica |

I-HISTORIA CLÍNICA

- F 56 anos. D. Graves tratada na Africa do Sul.
- Ligeiro aumento Cr. em 2008. 1ª biópsia renal
- Diagnóstico provisório : GN Immunotactóide
- 2ª b.r. sem glomérulos. Sem M.E.
- Regressa a Portugal. 2011 S.Nefrótico .Cr 10
- 3ª b.r. no HFF M.E. GN fibrilar
- Irmão c/ Transpl. Renal. Diagnóstico incerto

I-GN FIBRILHAR





GNFibrillar

(07350 00.0KV X50K 100um

20-25nm

7359

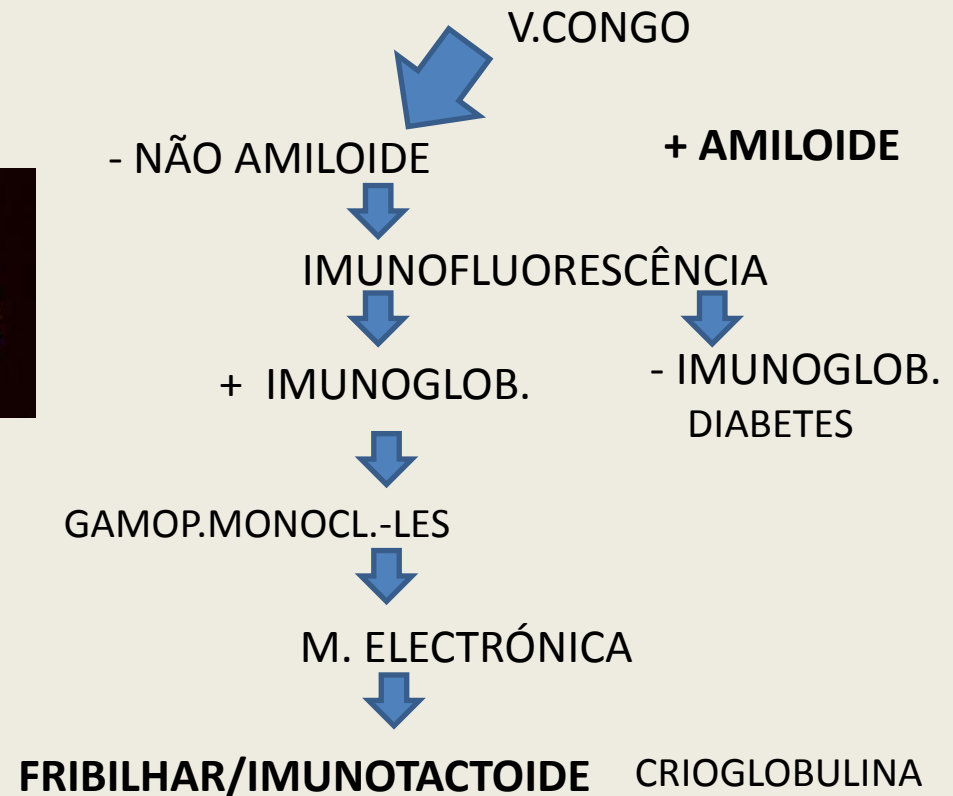
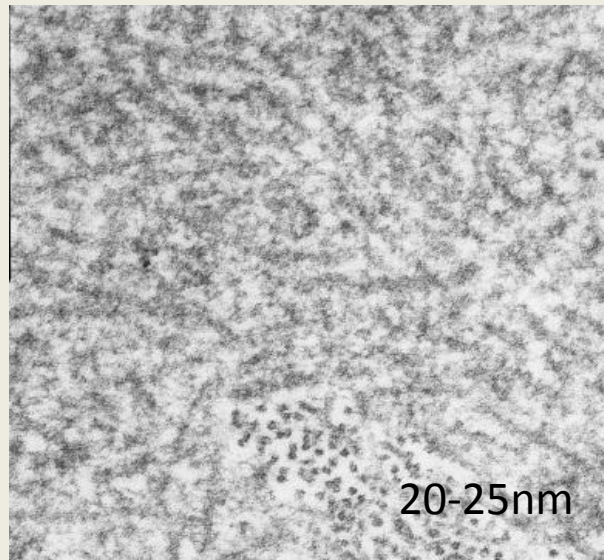
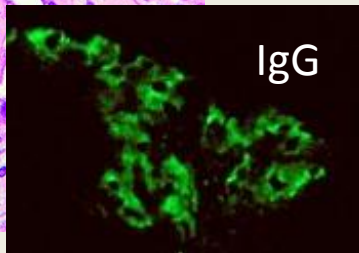
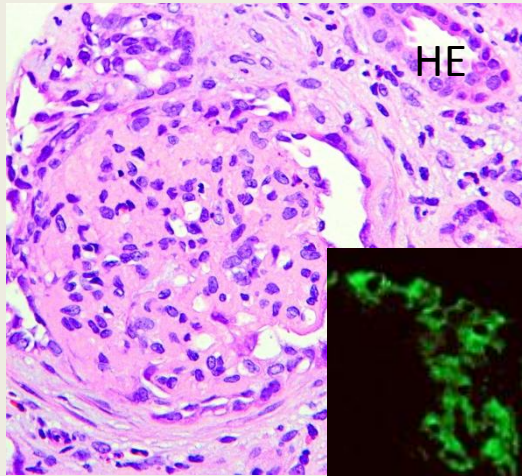


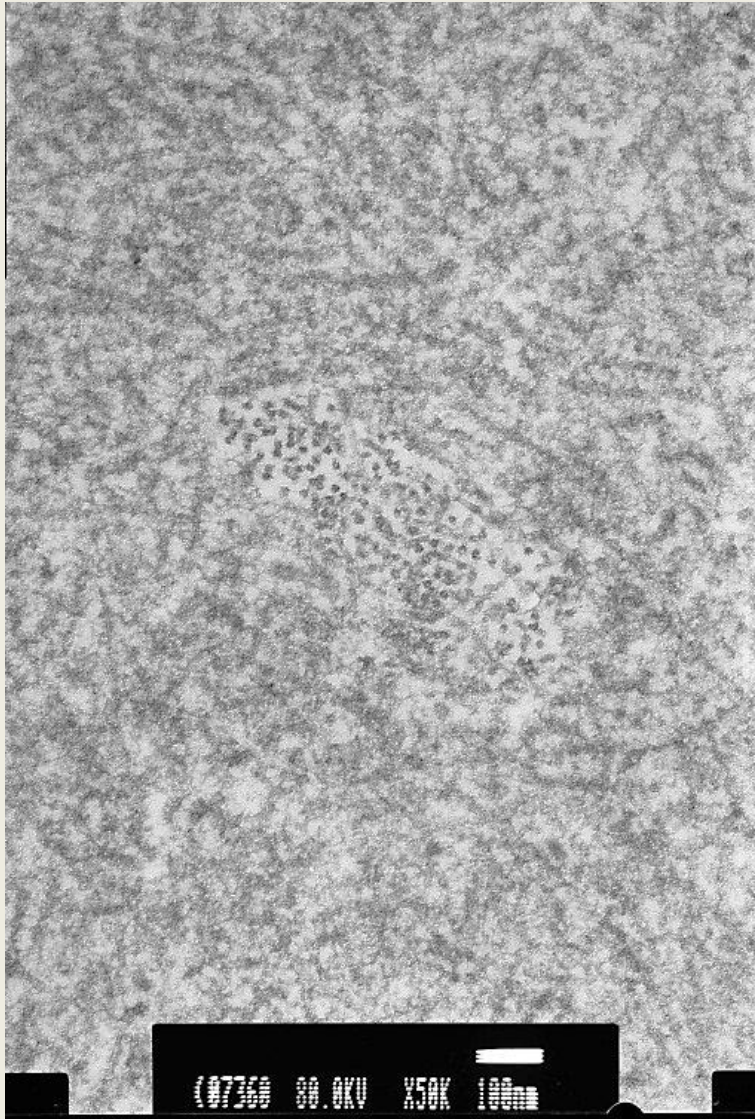
Amiloide

7-10nm

7165

I-GN FIBRILHAR/IMUNOTACTOIDE





I-GN FIBRILHAR

DEPÓSITOS FIBRILHARES V.CONGO NEGATIVO

CONTÊM IgG(IgG4) , C3 , PROT. P

CAUSA RARA de SIND. NEFRÓTICO

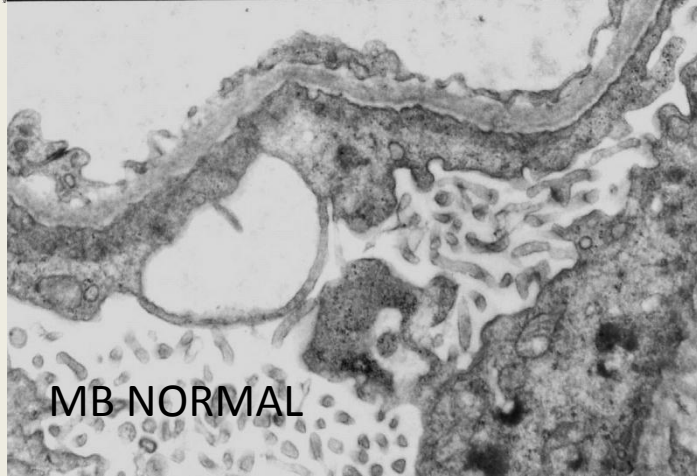
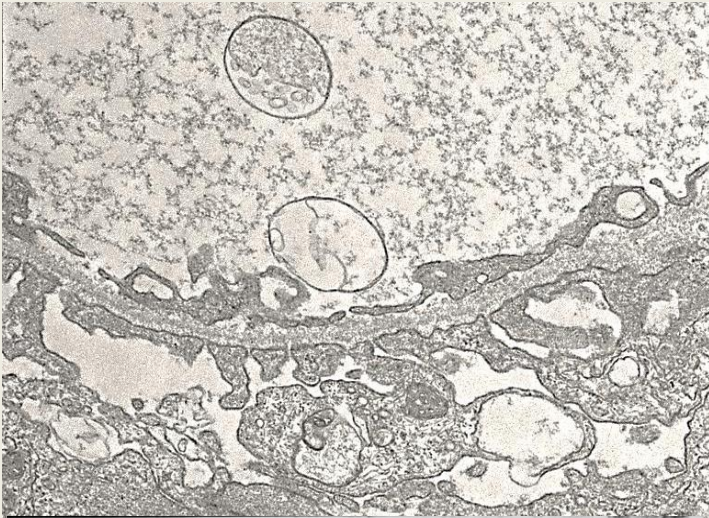
10 a 81 ANOS APRESENTAÇÃO I.R. >45%

SEM MANIFESTAÇÕES SISTÉMICAS
D.LINFOPROLIFERATIVA RARA

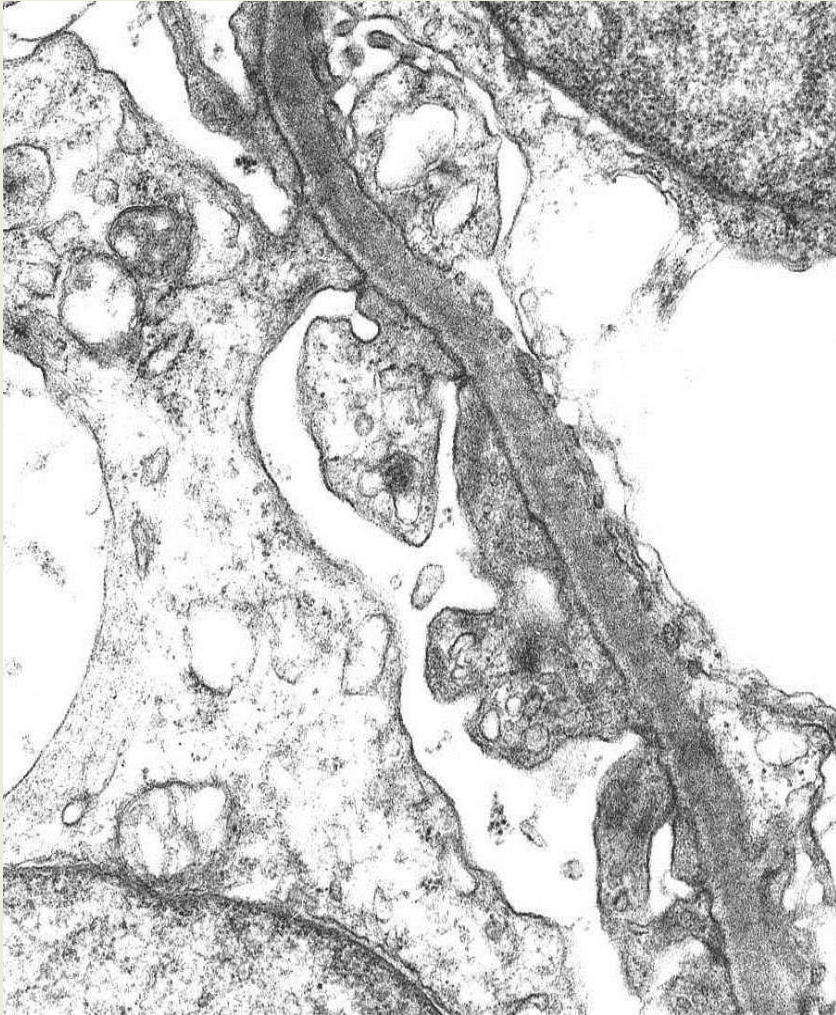
>50% EM IRC AVANÇADA 2 a 5 ANOS

45% DAS RECORRENCIAS FALÊNCIA TX

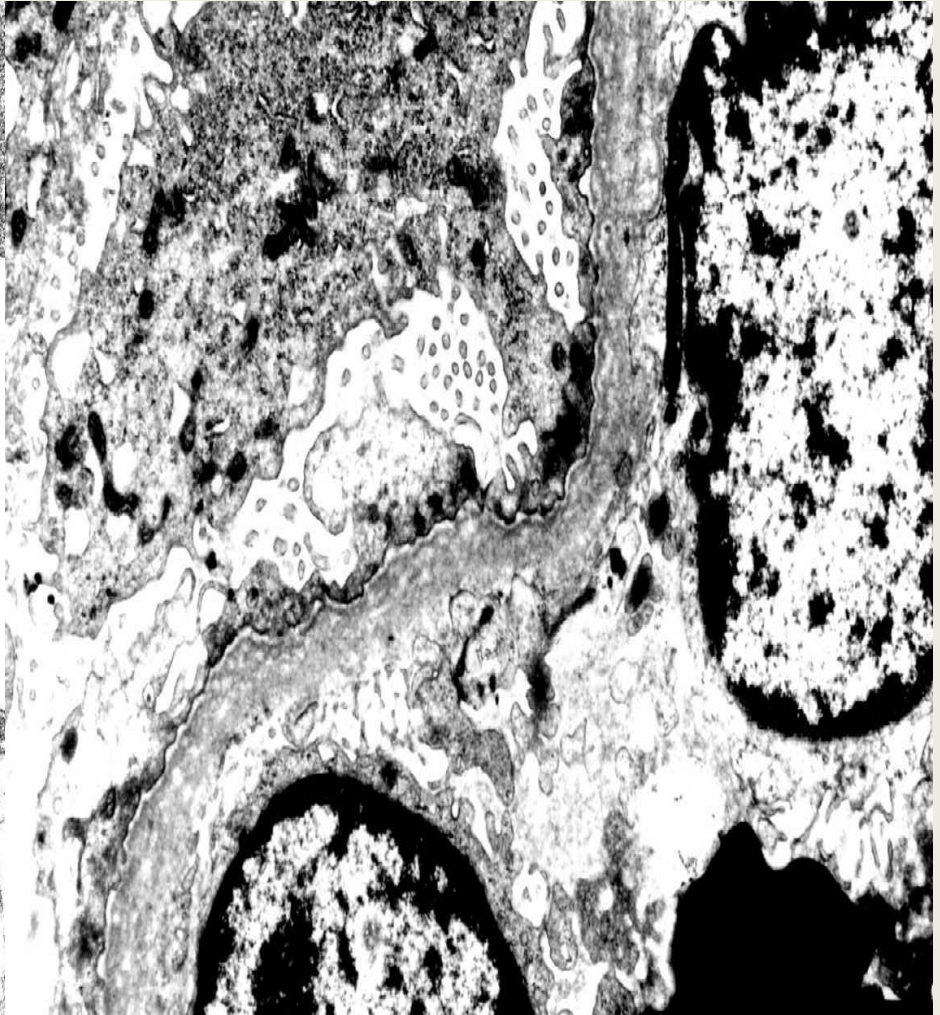
II-Hematúria microscópica F. 4nos



M.B. Normal 250-300nm



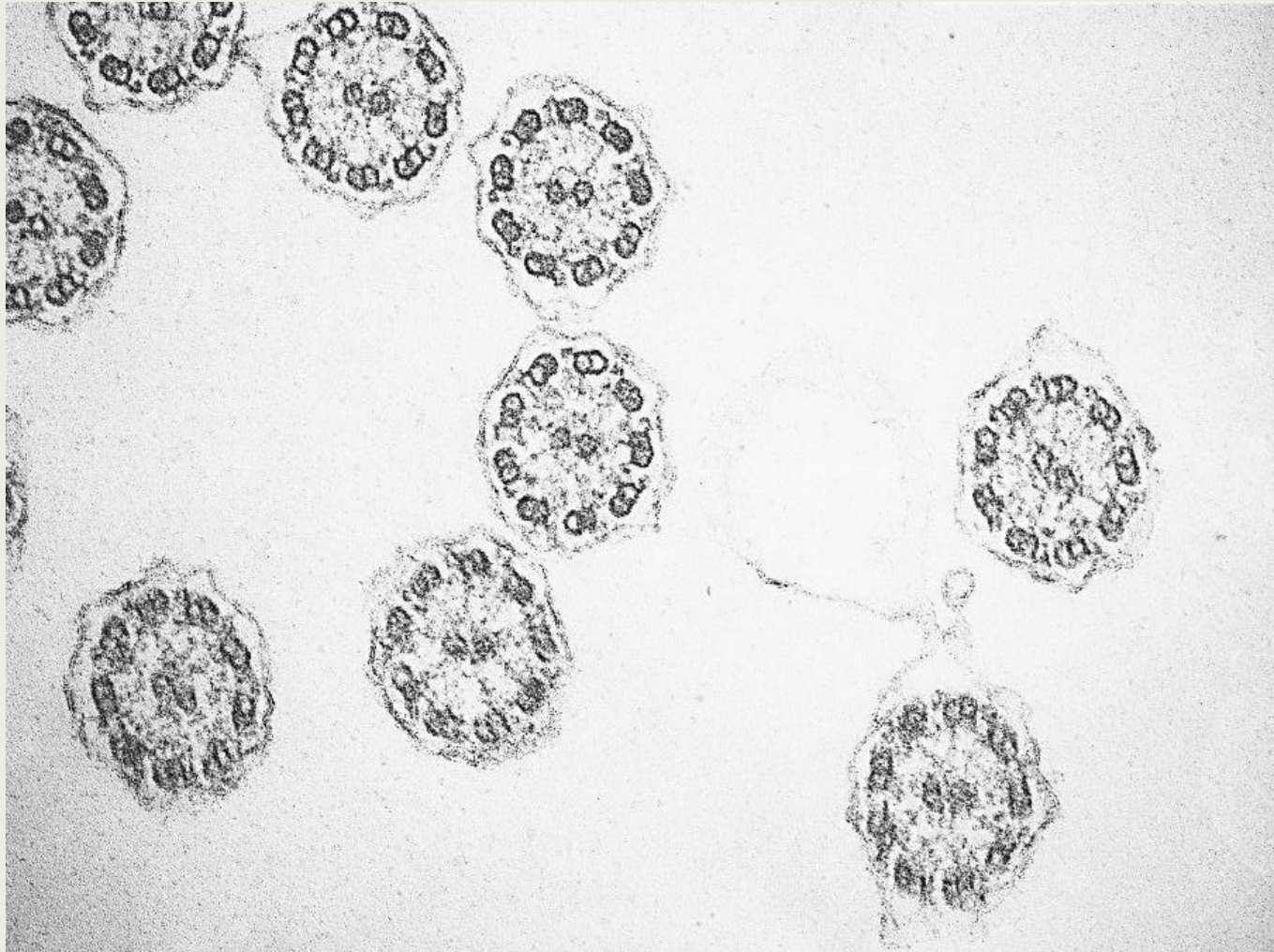
Alport



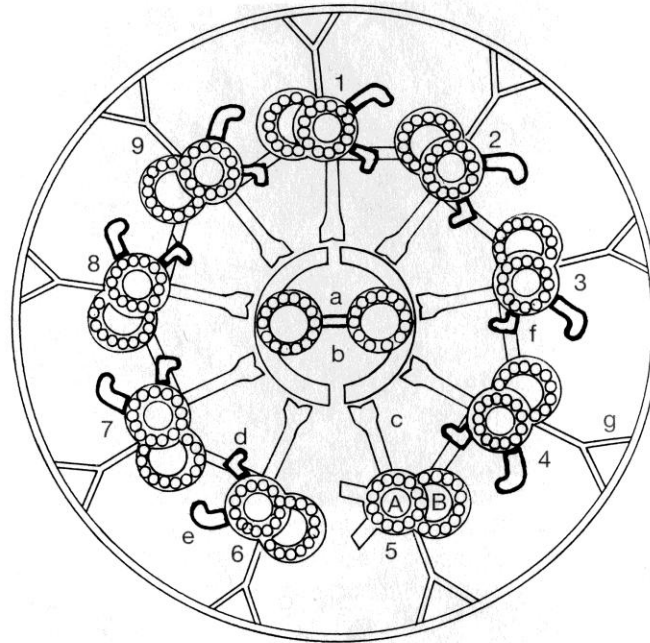
II-CRITÉRIOS DIAGNÓSTICO S.ALPORT

- 1- História familiar de hematuria associada a falência renal progressiva num dos membros da família
- 2- Alterações ultraestruturais inequívocas na membrana basal :
espessamento, duplicação, padrão em malha “basket weave”
- 3- Surdez progressiva sensorial de alta frequência.
- 4- Composição das cadeias alfa3, 4 e 5 do colagénio IV

III-CÍLIOS NORMAIS



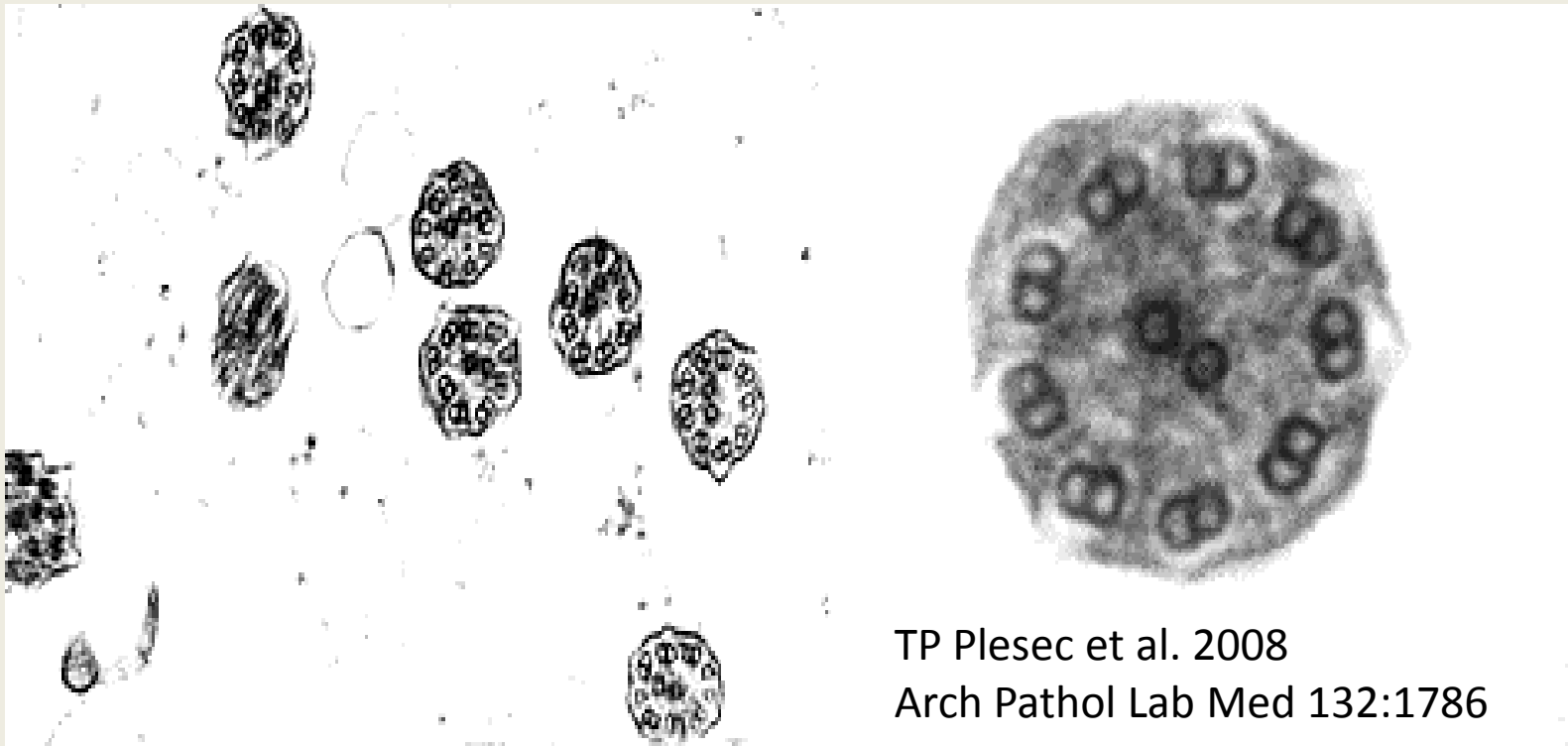
III-CÍLIOS



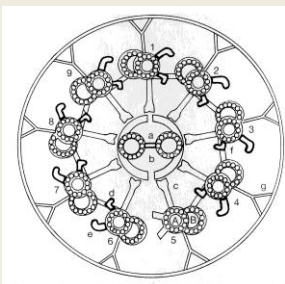
Esquema 9. Corte transversal de um cílio. Todas as estruturas do axonema estão simultaneamente presentes e exageradas apenas com fins didáticos. a – ponte central; b – bainha interna; c – projecção radial; d – braço interno; e – braço externo; f – ponte de nexina; g – filamento radial periférico.

Biologia Celular e
Molecular Prof. Carlos
Azevedo 2005 Cap. 4

III-CÍLIOS ANORMAIS



TP Plesec et al. 2008
Arch Pathol Lab Med 132:1786



CÍLIOS ANÁLISE QUANTITATIVA

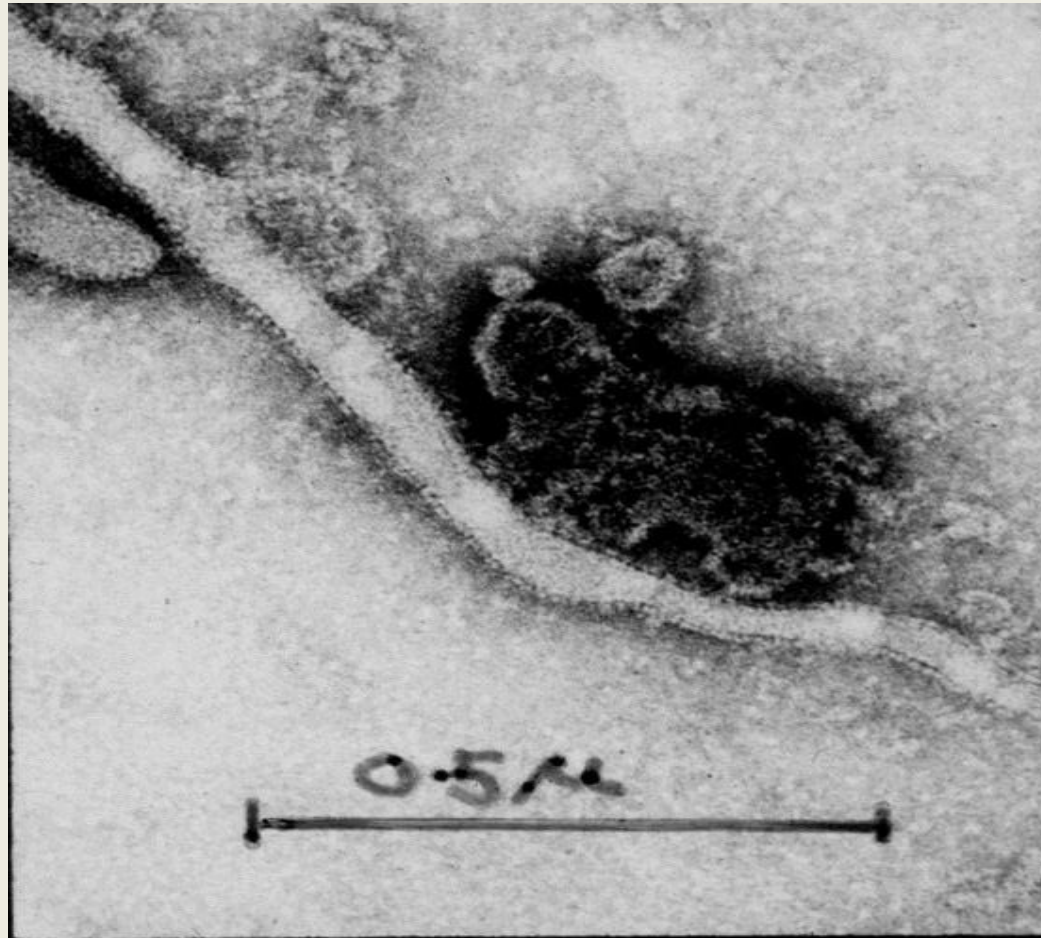
| E 40 11 | CILI Nº | 1 BRA EXT | 2 BRA INT | 3 RAI | 4 PON NEXI | ANOR MAL | 5- DUPLET ORIENT |
|-------------|---------|-----------|-----------|-------|------------|----------|------------------|
| TOTAL | 86 | 476 | 183 | 181 | 91 | 3 | 618 |
| POR/CIL | | 5,5 | 2,1 | 2,1 | 1,1 | | |
| TEÓRIC 9X86 | 774 | 774 | 774 | 774 | 774 | 774 | 774 |
| 1/5....% | | 77 | 30 | 30 | 15 | | |

TÉCNICAS ALTERNATIVAS

M.O e M.E

VILOSIDADES TUBULO RENAL

Contraste negativo *Biochem.J.* 1968

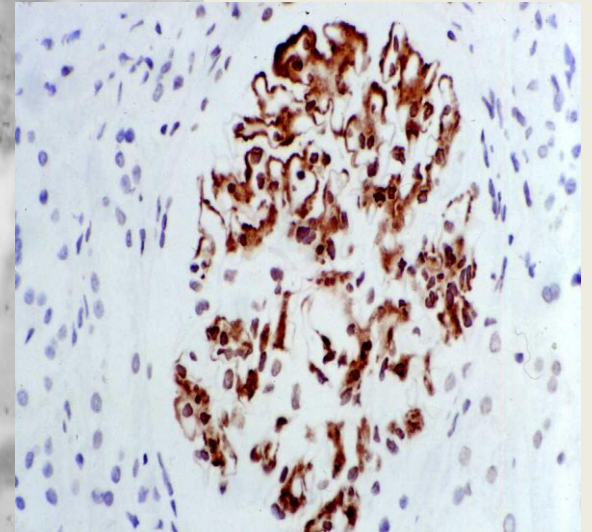


Lupus

AVRAMEAS S
1968
BURNS J *et al*
1974

C1q

Imuno ME Ouro coloidal



Imunoperoxidase

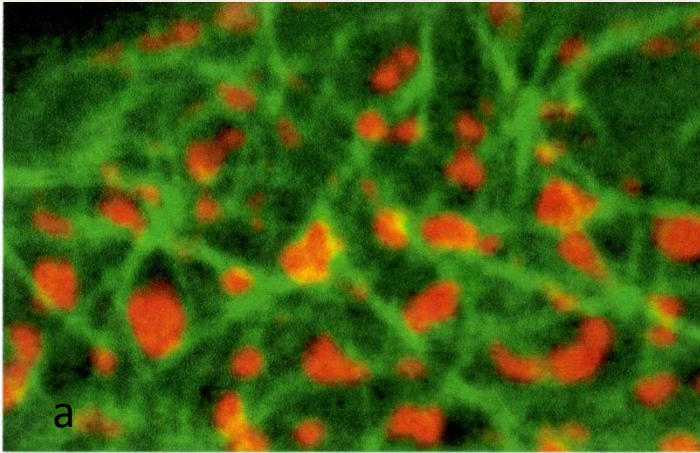
CULTURA CEREBELO RATO (Leeds 1965)



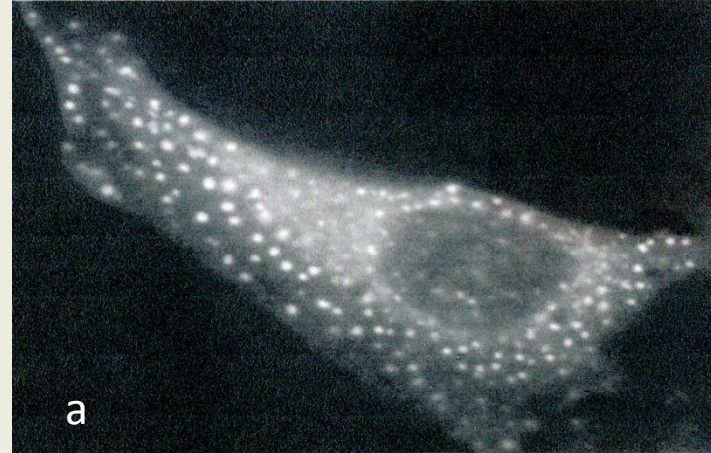
PROGRESSOS EM MICROSCOPIA

- USO FLUÓFOROS ORGÂNICOS e PROTEINAS FLUORESCENTES (GFPs)
- MICROSCOPIA DE ALTA RESOLUÇÃO (20nm) (CONFOCAL /FLUORESCÊNCIA) e FOTOGRAFIA de ALTA VELOCIDADE
- APLICAÇÃO MÉTODOS MATEMÁTICOS (BAYES) na ANÁLISE DE IMAGEM

PURINOSOMAS(a) *CYTOOPHIDIA*(b)



These clusters of metabolic enzymes reside in tangles of microtubules, like berries in a bramble bush.

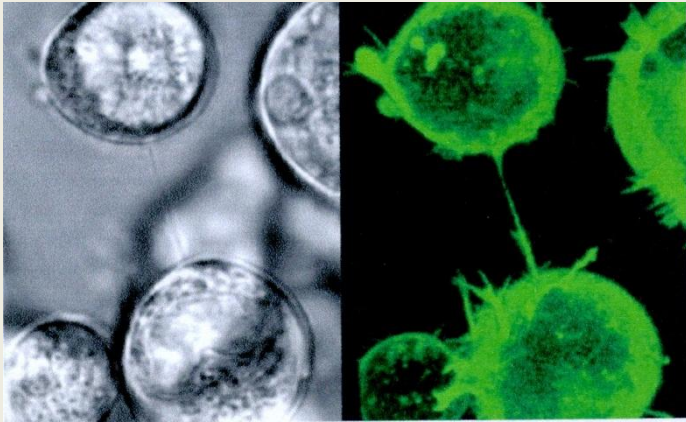


'Purinosome' clusters form in HeLa cells when they are deprived of certain nutrients.

S. AM ET AL. SCIENCE 320, 103-106 (2008)

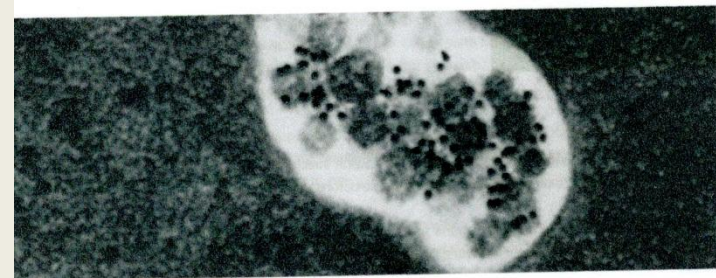
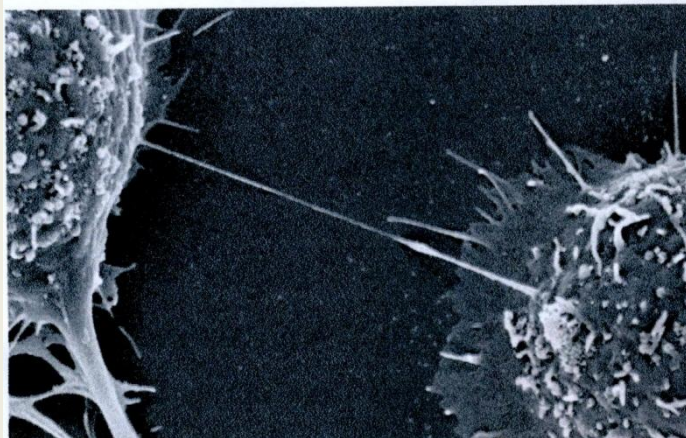


NANOTUBULOS e EXOSSOMAS



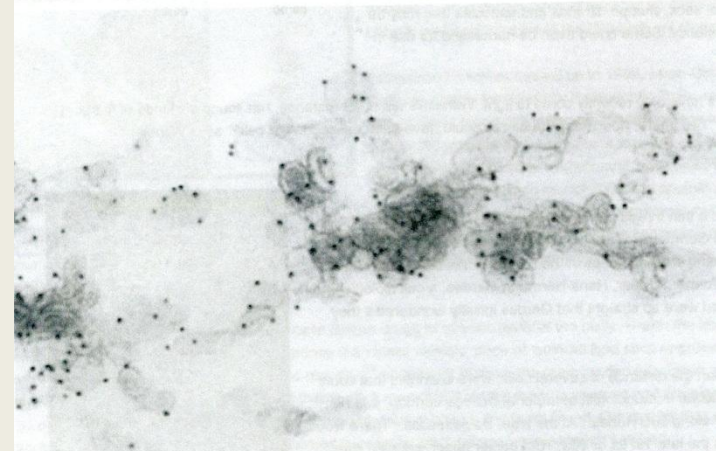
Some structural cellular elements are coming under fresh scrutiny, such as nanotubes, seen here connecting human B cells viewed through light microscopy (left) and shown with fluorescence (right).

B. ONFELT ET AL. J. IMMUNOL. 173, 1511-1513 (2004)



Electron microscopy began capturing exosomes in the early 1980s.

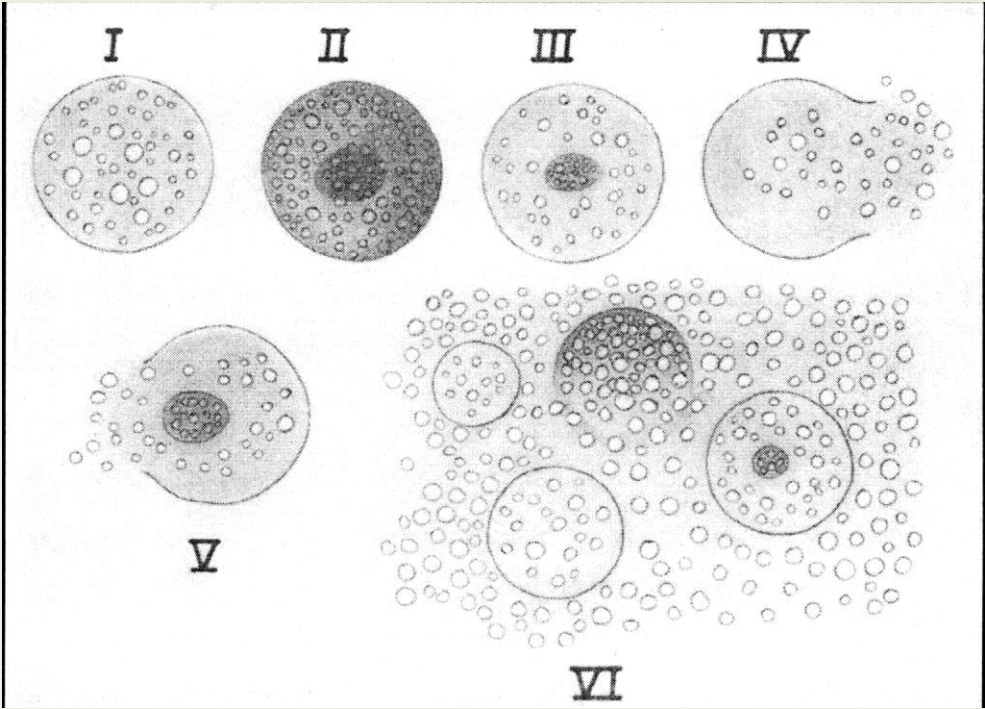
B.-T. PAN ET AL. J. CELL BIOL. 101, 942-948 (1985)



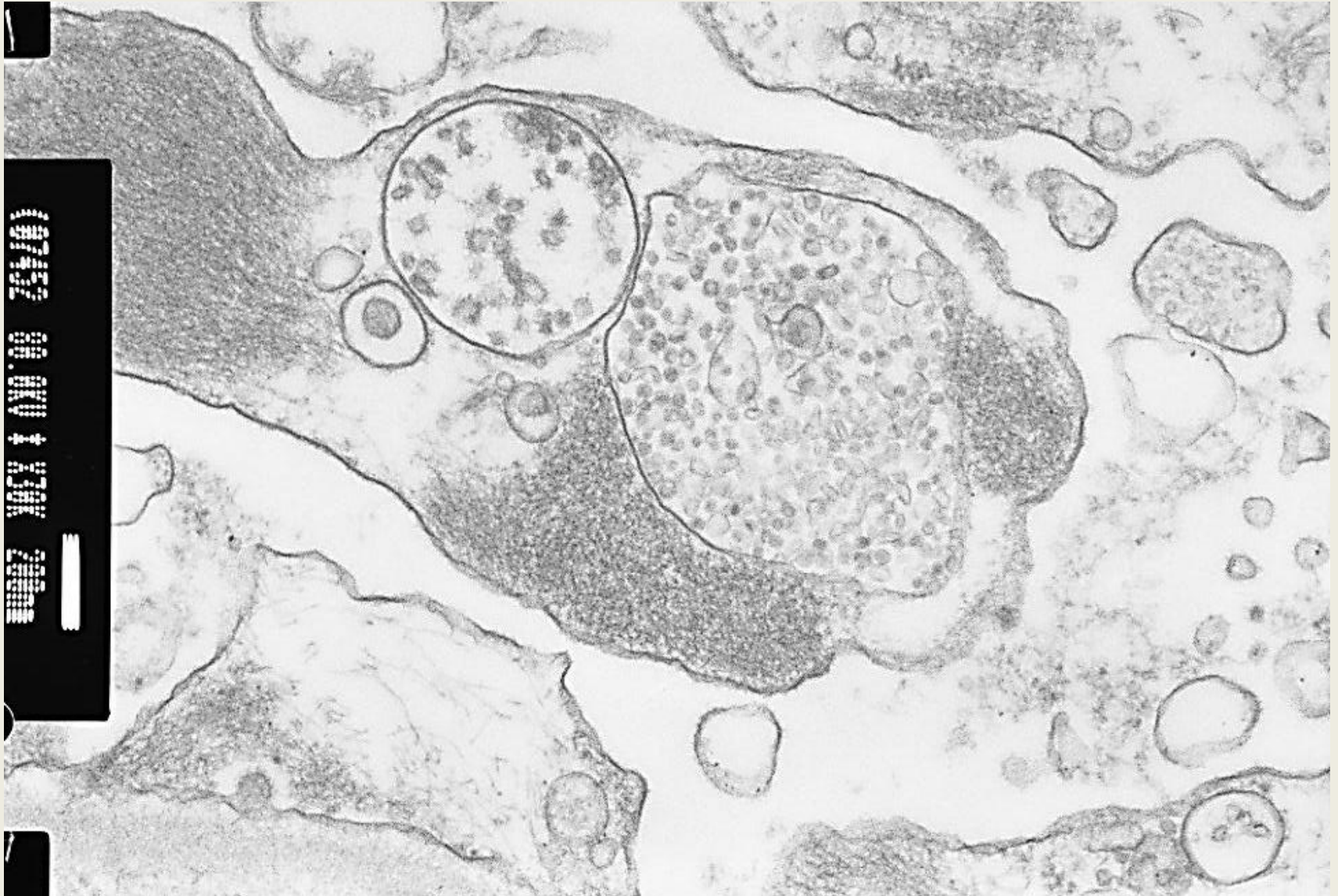
Exosomes have been found to carry the molecule MHC class II, which presents pathogen protein fragments to the immune system.

G. RAPOSO ET AL. J. EXP. MED. 183, 1161-1172 (1996)

SOTELO and PORTER 1959

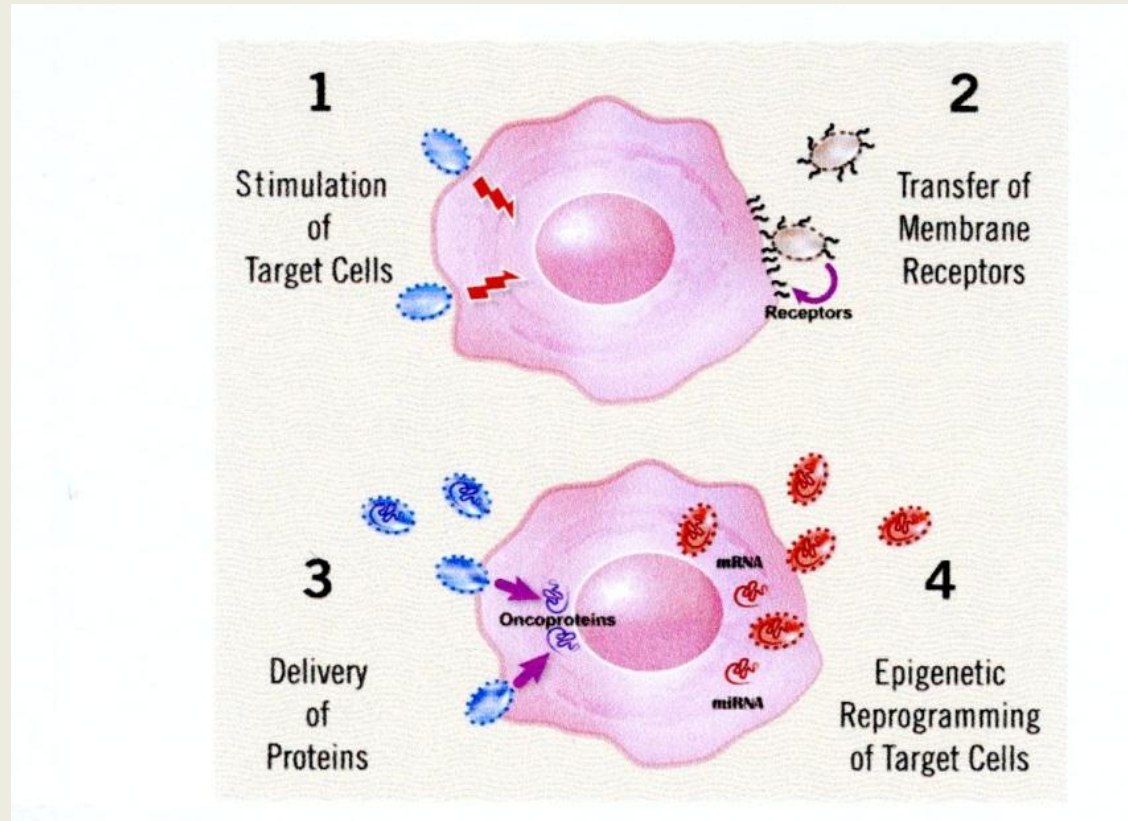


CMV/EXOSSOMAS PODOCITO _x

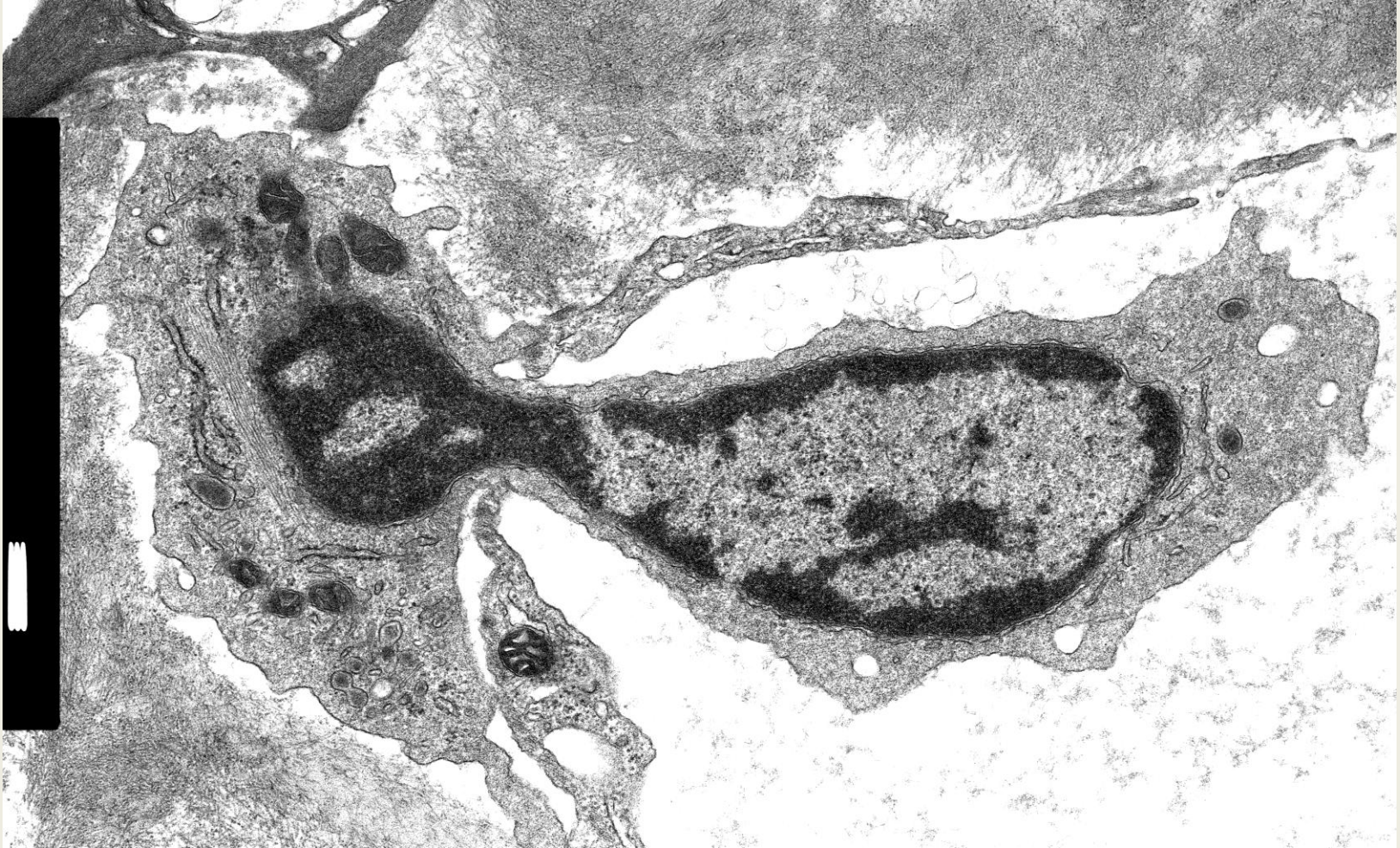


Exossomas comunicação intercelular

Camussi *et al.* Kid. International (2010) **78**, 838-48

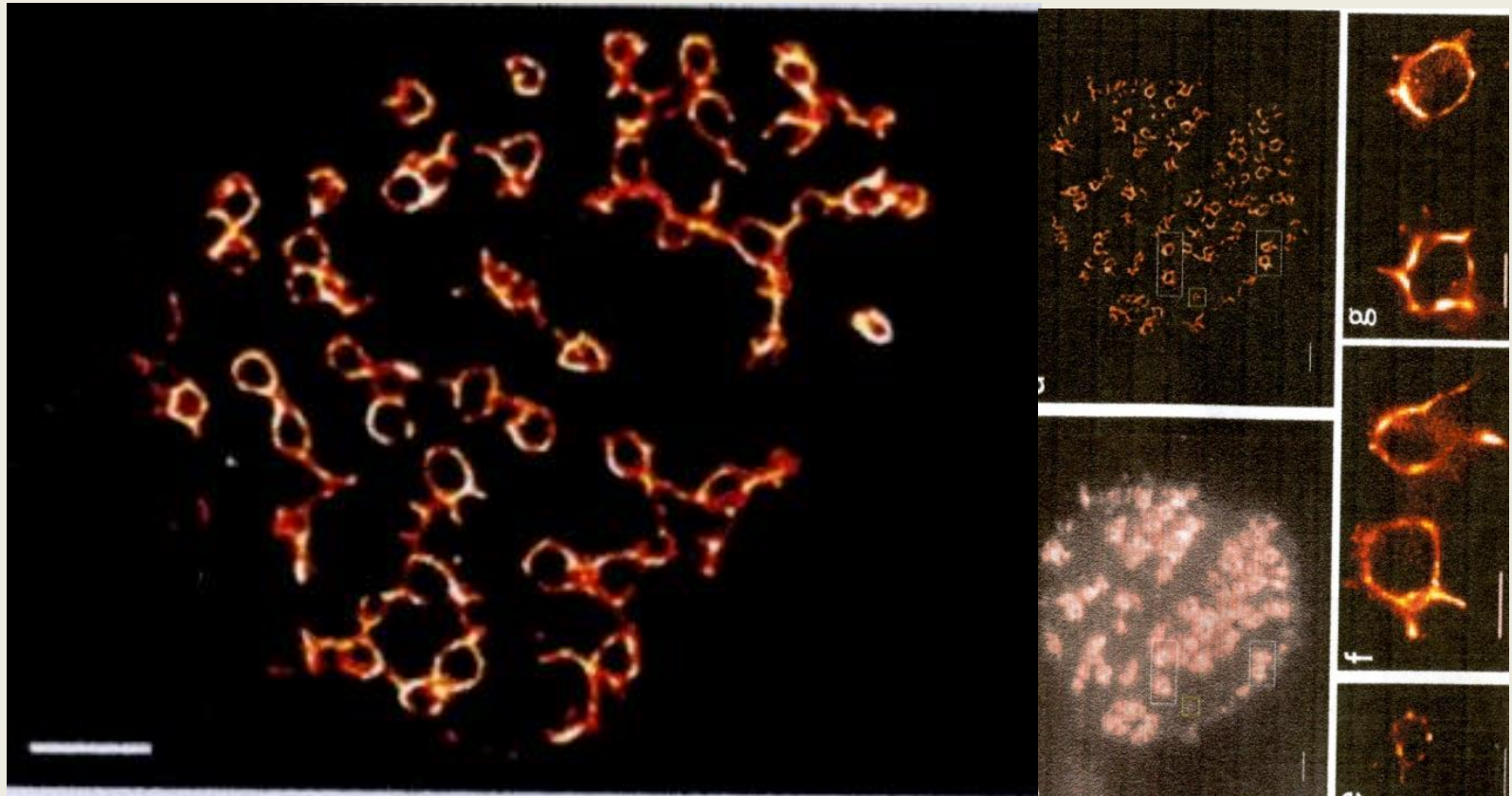


CÉLULA CAPILAR GLOMÉRULO RENAL



Neg 7167 500nm

ORIGINAL RESEARCH PAPER Cox, S. et al.
Bayesian localization microscopy reveals
nanoscale podosome dynamics. *Nature Methods*
4 Dec 2011 (doi:10.1038/nmeth.1812)



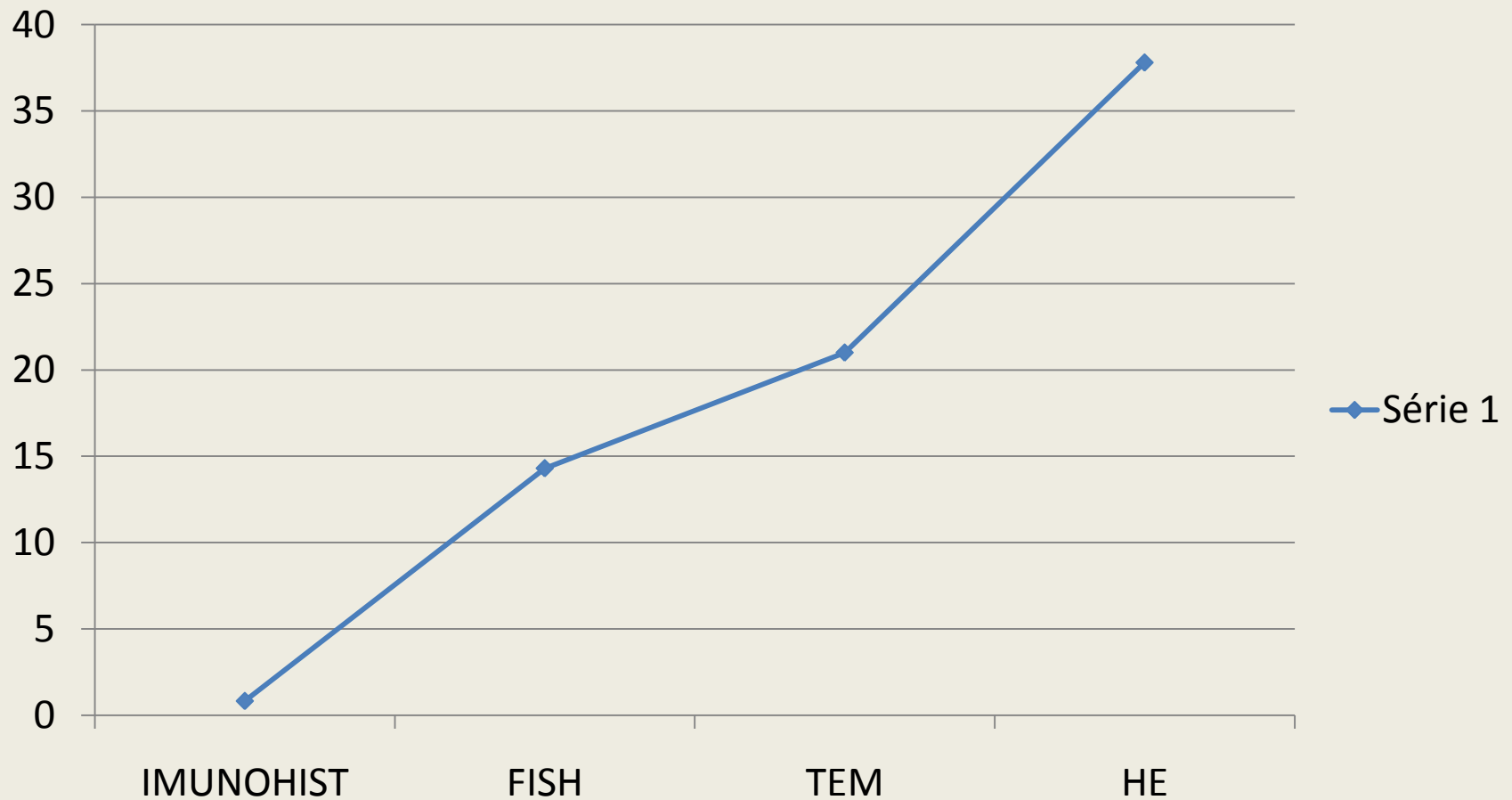
TÉCNICAS 1991-2011

PUB MED

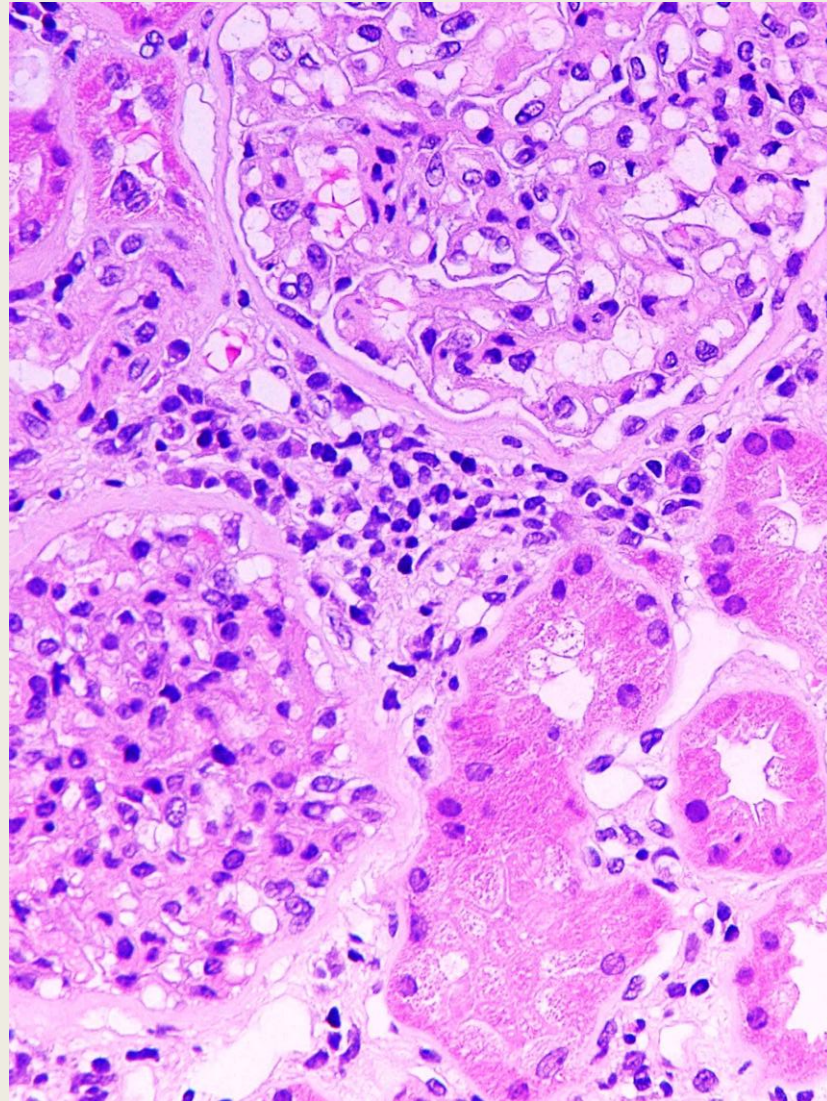
| TECNICAS | 1991 | 2001 | 2011 | 10 ANOS | 20 ANOS |
|-----------|-------|-------|-------|---------|---------|
| HE | 30 | 506 | 1165 | X17 | X39 |
| TEM | 242 | 1071 | 5325 | X4,43 | X22 |
| FISH | 154 | 2258 | 2356 | X15 | X15 |
| IMUNOHIST | 13169 | 20702 | 23956 | X1,57 | X1,82 |
| PAS | 198 | 74 | 94 | X0,37 | X0,47 |

CRESCIMENTO anual 1991-2011

PUB MED

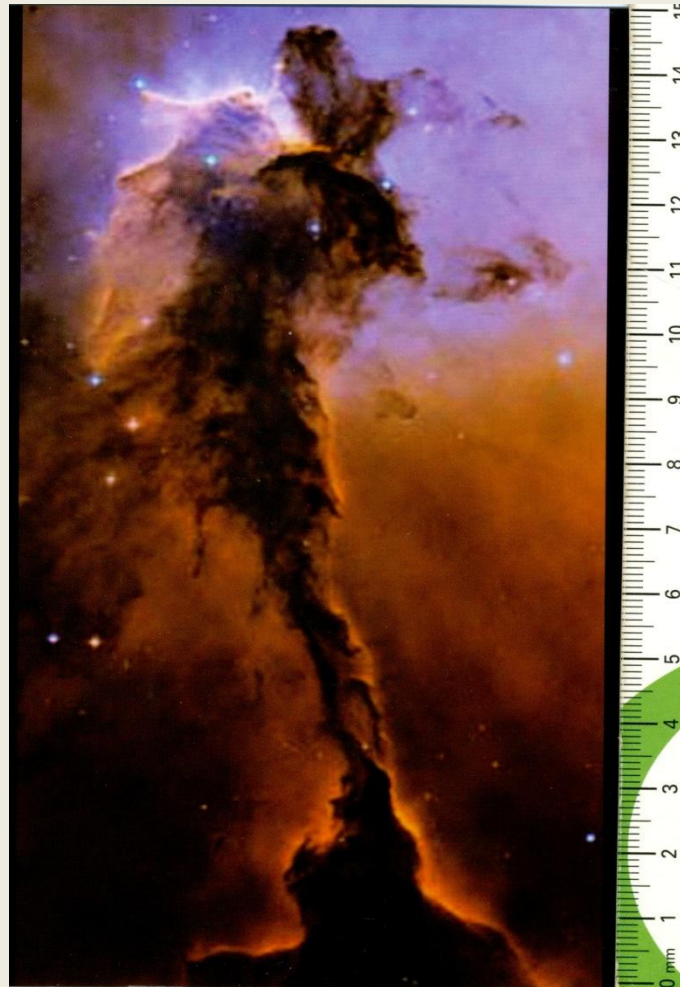


HE 2012



Stellar Spire na Nebula Eagle

Hubble Space
Advanced Camera



90 triliões Km altura