Diagnóstico:

ANGIOMIOLIPOMA

Definición

- El angiomiolipoma es un tumor mesenquimatoso benigno compuesto por:
  - Tejido adiposo.
  - Células fusiformes.
  - Células epitelioides de músculo liso.
  - Vasos sanguíneos anormales de paredes gruesas (carecen de elástica).
- Se han agrupado en la familia de los PEComas (tumores perivasculares de células epitelioides)

1. WHO, Clasifications of tumor of the urinary system and male genital organs, 4 th ed, 2016.
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Epidemiología

- Esporádicos
- M/H 4:1
- > 39 años.
- Reportados con mayor frecuencia.
- Lesiones de mayor tamaño.
- Síntomas: Dolor, hematuria y tumor palpable.

- Relacionados a Esclerosis Tuberosa:
  - Desorden Autosómico dominante.
  - Retraso mental.
  - Crisis epilépticas.
  - Desarrollo de múltiples neoplasias.
  - Alteraciones en TSC (TSC1-9q34/TSC2 16p13).
  - No hay predilección de género.
  - 3ª y 4ª década de la vida.
  - < 4 cm.

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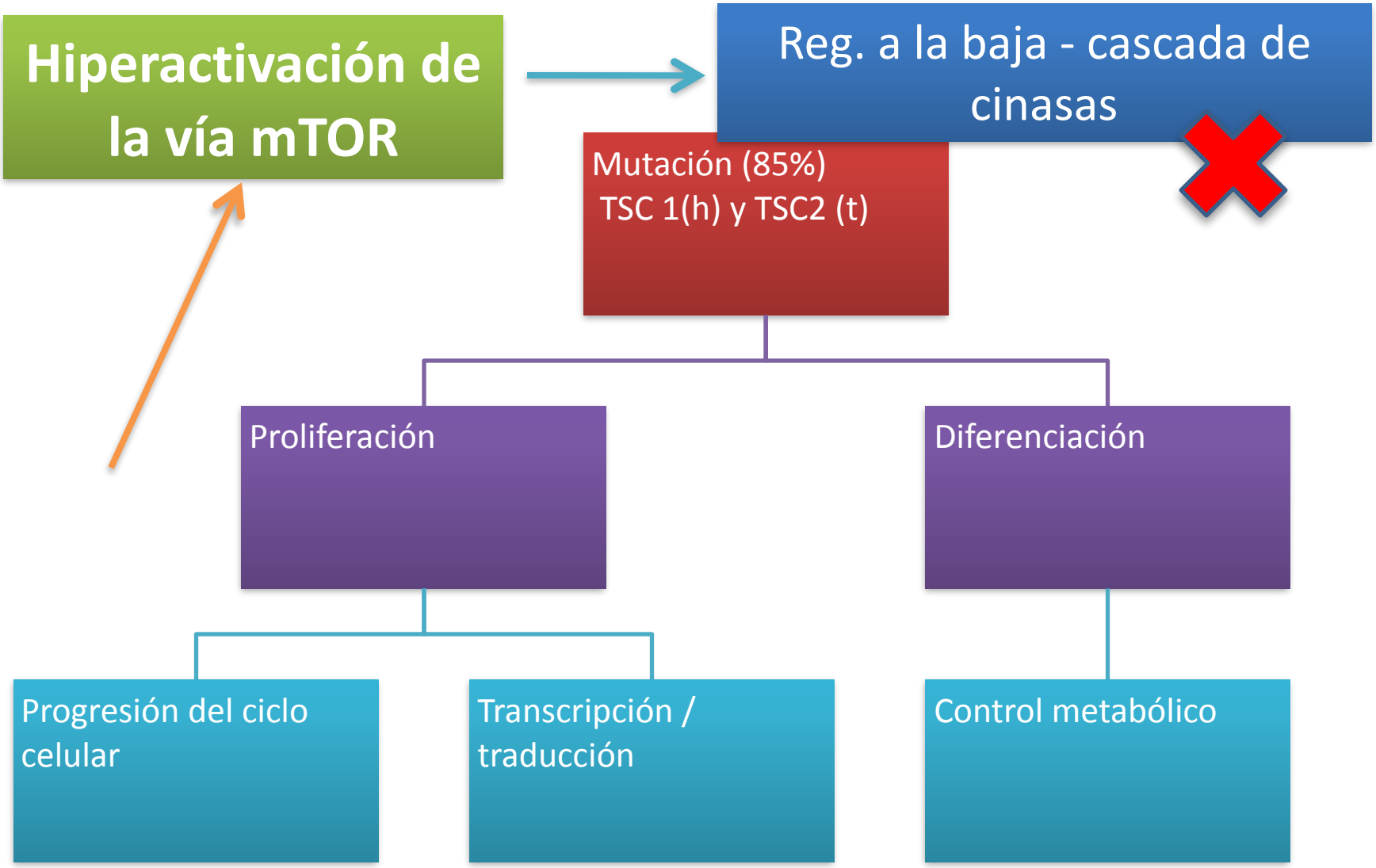

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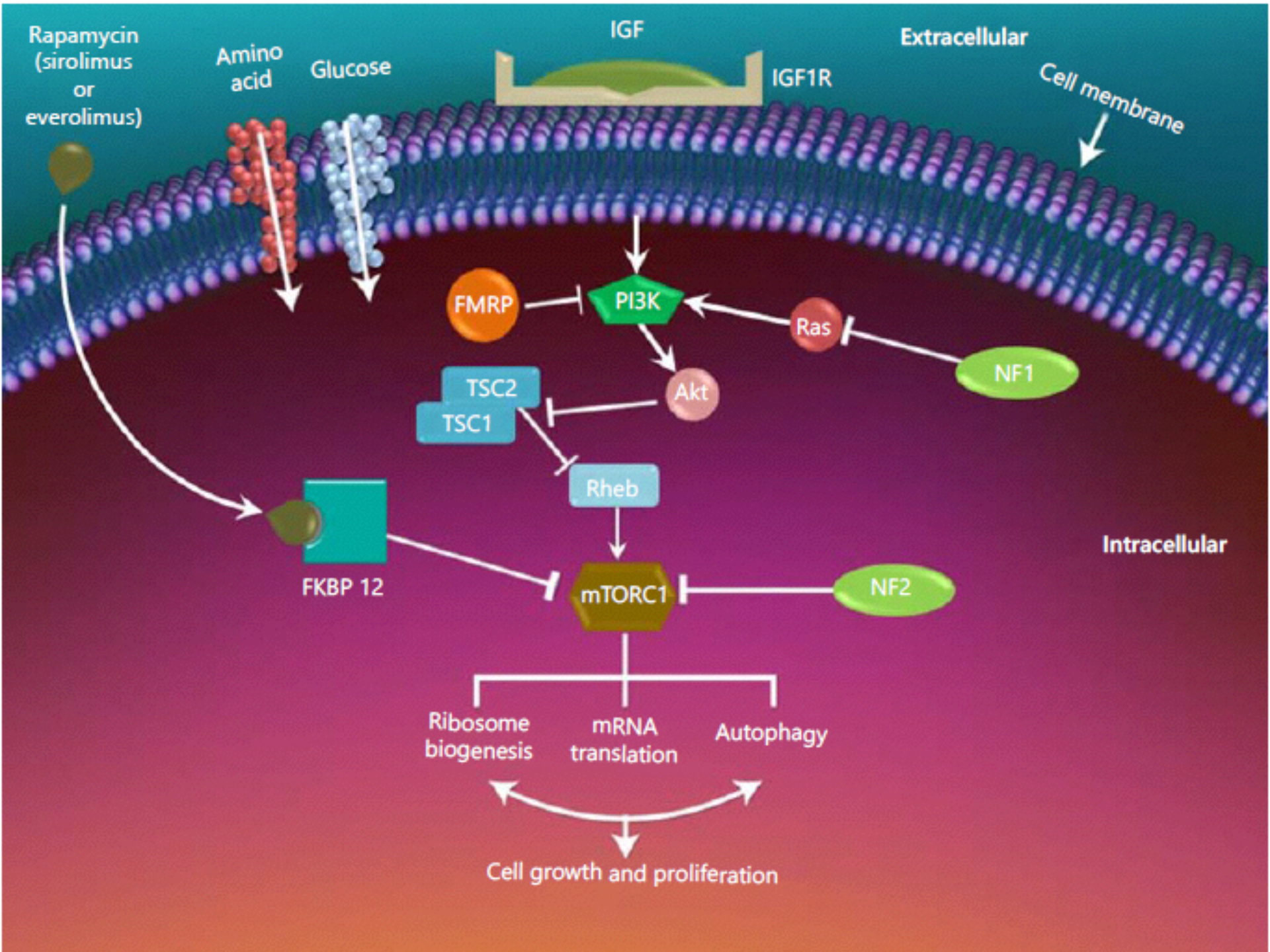
Rapamycin (sirolimus or everolimus)
Amino acid
Glucose
IGF
IGF1R
Extracellular
Cell membrane
FMRP
PI3K
Ras
NF1
Akt
TSC2
TSC1
Rheb
FKBP 12
mTORC1
NF2
Intracellular
Ribosome biogenesis
mRNA translation
Autophagy
Cell growth and proliferation

Etiología

- Inicialmente considerados como hamartomas.
- Posteriormente dada su naturaleza clonal se ha visto que se trata de verdaderas neoplasias
- Estudios moleculares, de inmunohistoquímica y ultraestructurales:
  - Han demostrado diferenciación de las células neoplásicas hacia células Epitelioides perivasculares (sin contraparte normal conocida).
- Etiología y patogenia desconocidas:
  - Influencia hormonal, pues expresan Receptores beta de estrógenos
  - Más frecuente en mujeres
  - Presentación posterior a la pubertad

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Localización y características macroscópicas

- Corteza /Médula/Tejidos blandos del retroperitoneo.
- Uni/multifocales (relación con Esclerosis Tuberosa).
- Pueden presentar extensión al sistema venoso intrarrenal, vena renal o vena cava, pero esto es muy poco común.
- En ganglios linfáticos se considera extensión, y no metástasis.
- Bien circunscritos, no encapsulados, amarillo a rosado, de bordes empujantes, pero no infiltran.
- Cambio quístico poco frecuente.

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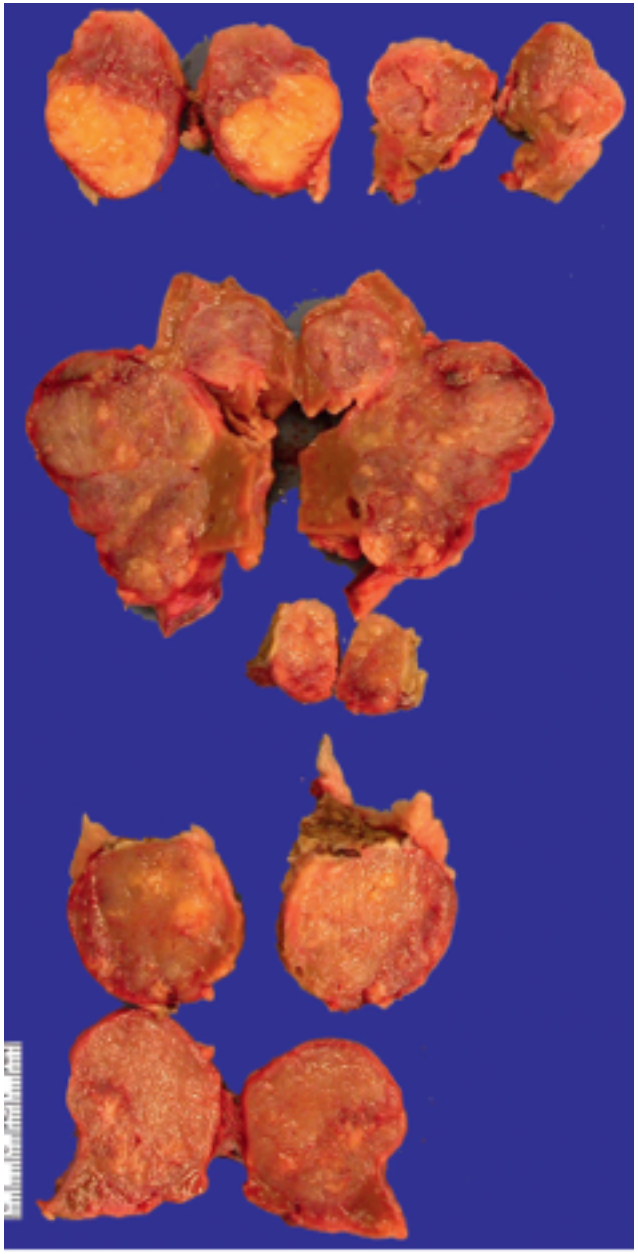
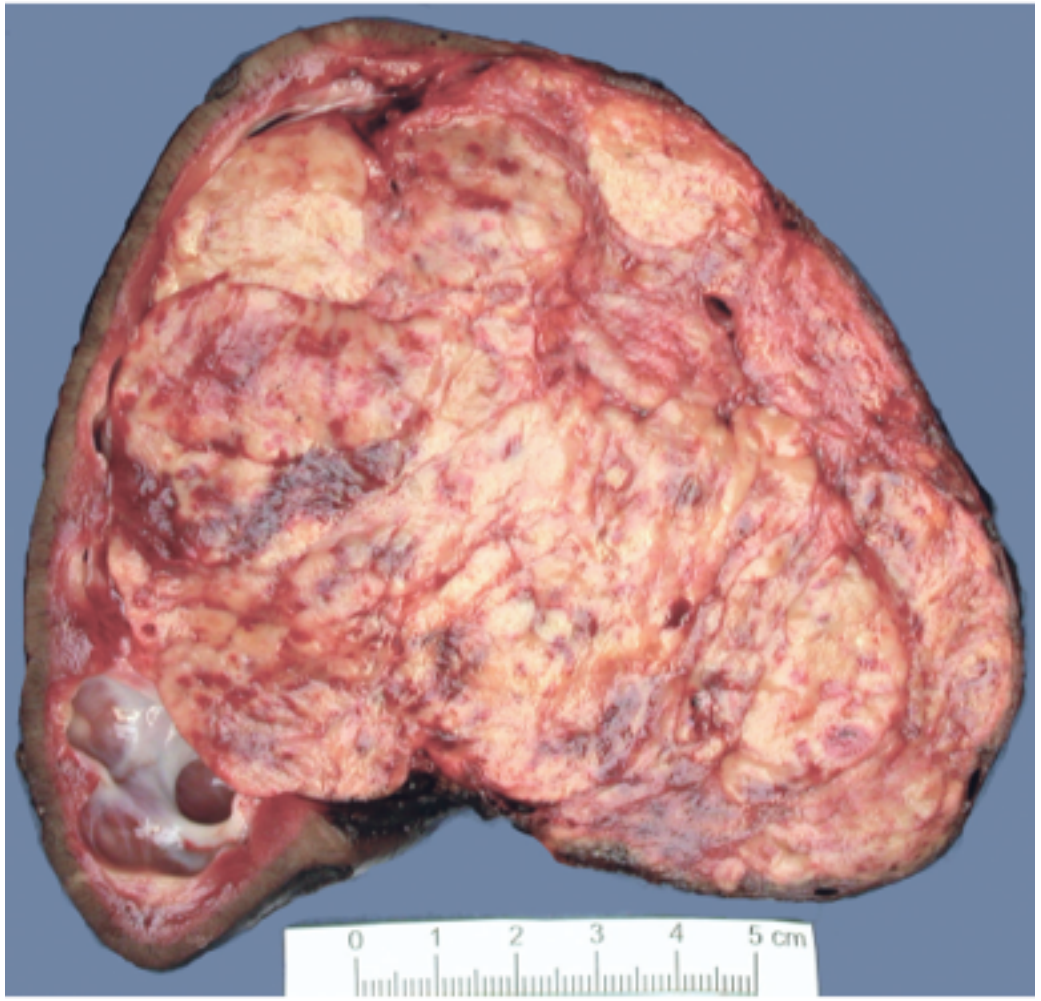
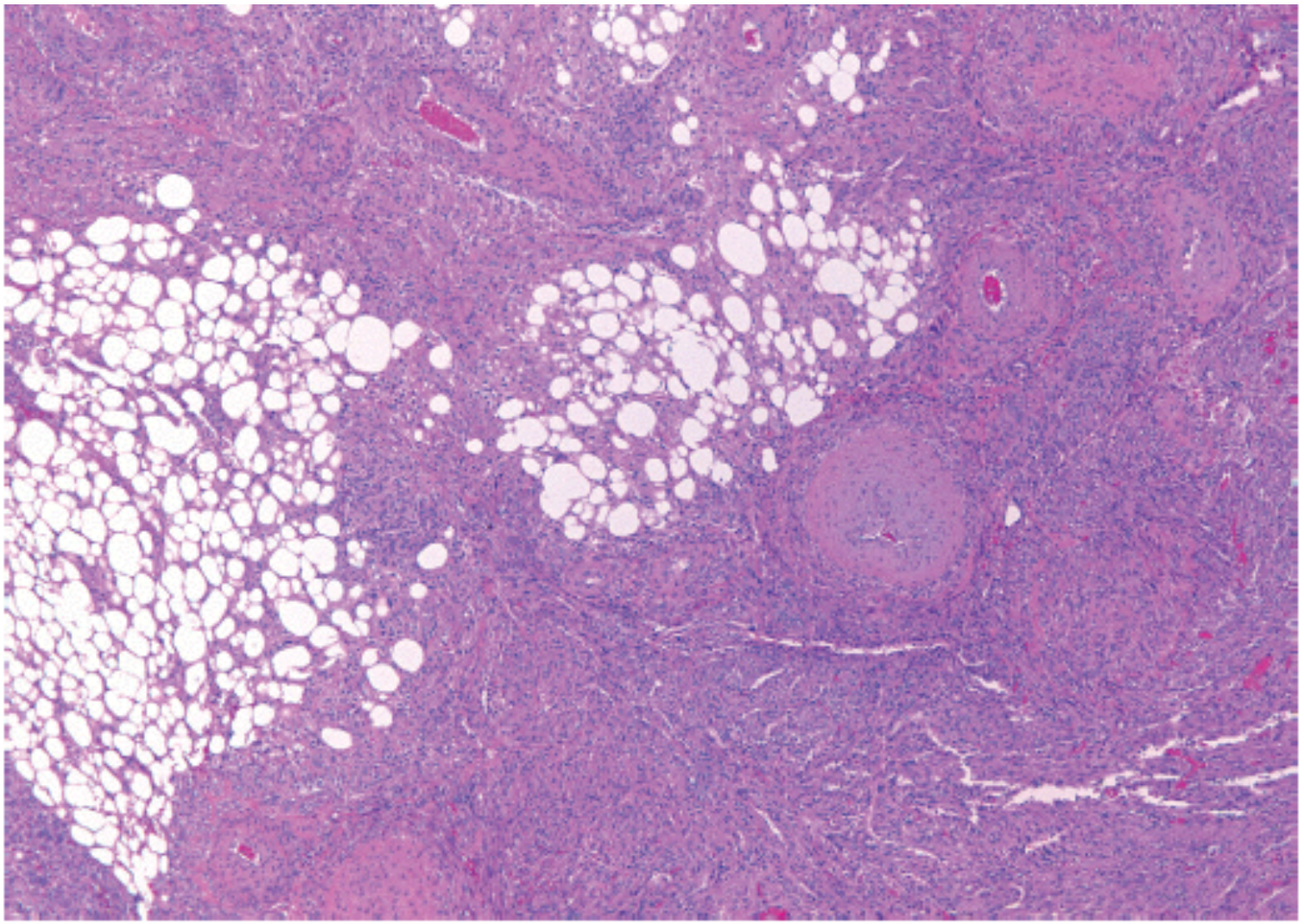
Aspecto Macroscópico





Características microscópicas

- 

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IHQ

- Marcadores melanocíticos:
  - HMB45
  - Melan A
  - Factor de transcripción de microftalmia.

- Marcadores de músculo liso:
  - AML
  - Calponina.
- CD68, PS100, ER, PR +/-
- Catepsina K (AML con quistes epiteliales)

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- Variante epitelioide:
  - Variante rara.
  - 80% de células epitelioides.
  - 4.6% de todos los AML.
  - Pacientes con y sin TS, S. TSC2/PKD1.
  - Media 50 años (30-80 años).
  - Macro: infiltrante, café oscuro, zonas de hemorragia y necrosis.
  - Extensión extrarrenal a vena renal y cava.
  - Comportamiento maligno.

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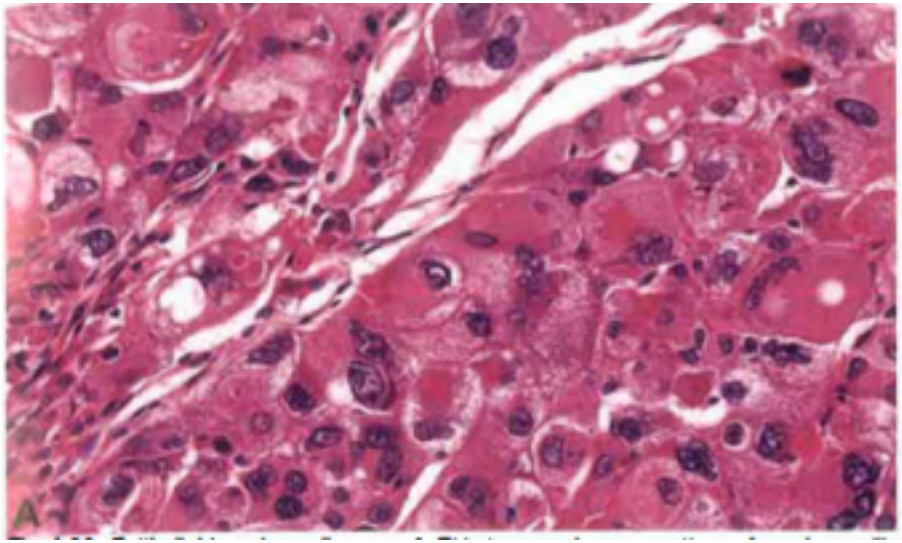
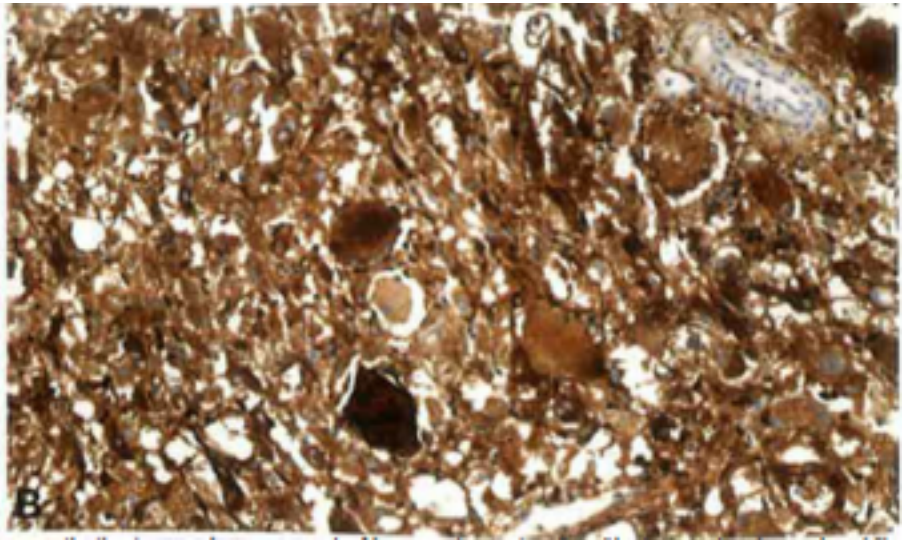
- Células poligonales de citoplasma eosinófilo dispuestas en nidos o mantos separados por finos septos vasculares.
- Atipia nuclear.
- Nucléolo prominente.
- Inclusiones intranucleares.





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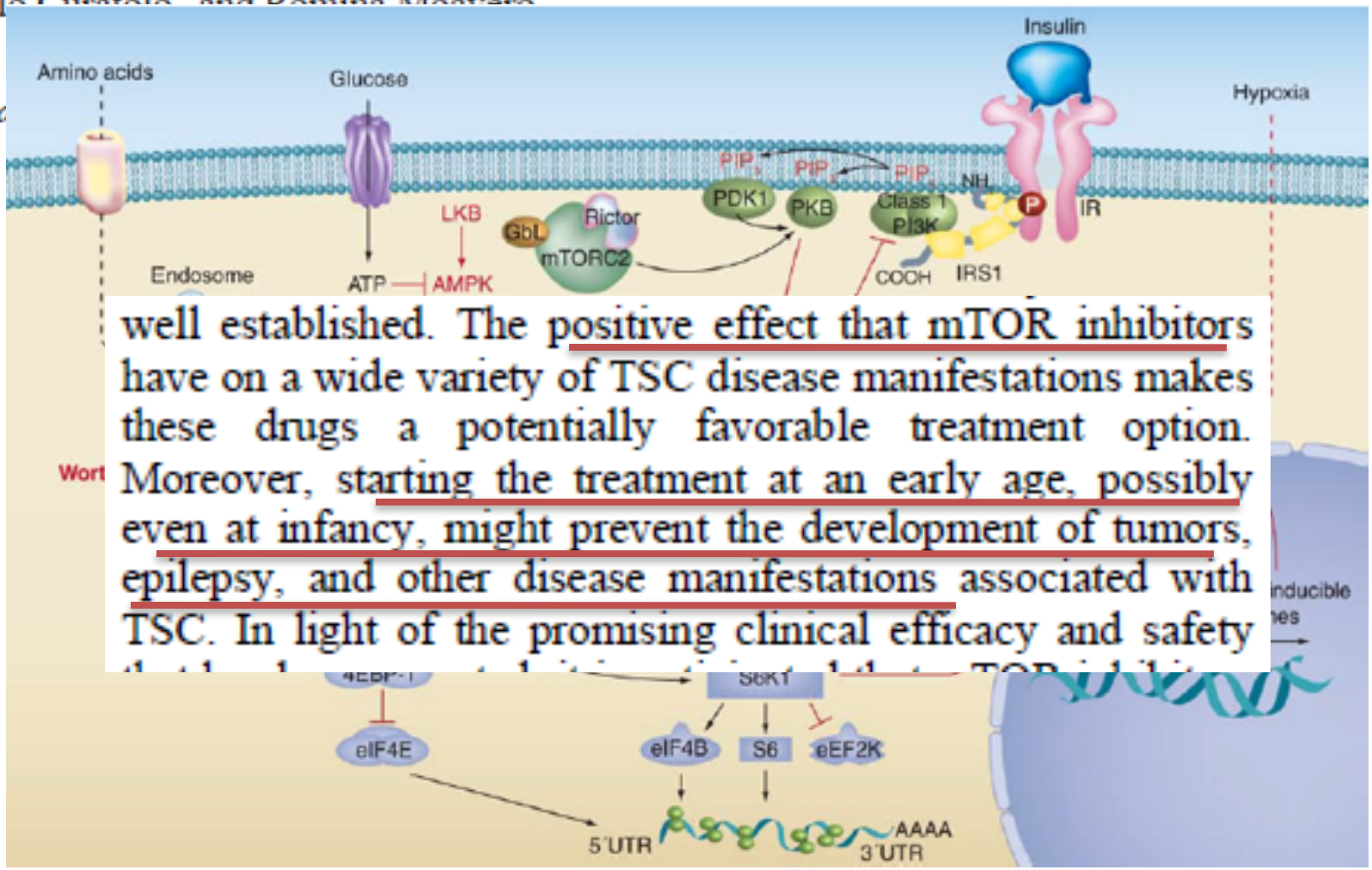
mTOR Inhibitors in Tuberous Sclerosis Complex

Paolo Curatolo* and Romina Moavero

Pedi



well established. The positive effect that mTOR inhibitors have on a wide variety of TSC disease manifestations makes these drugs a potentially favorable treatment option. Moreover, starting the treatment at an early age, possibly even at infancy, might prevent the development of tumors, epilepsy, and other disease manifestations associated with TSC. In light of the promising clinical efficacy and safety

Original Article

Concurrent Angiomyolipomas and Renal Cell Neoplasms in Patients Without Tuberous Sclerosis: A Retrospective Study

International Journal of Surgical Pathology
2015, Vol. 23(4) 265–270

DOI: 10.1177/1066896915569914
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Mariachiara Mei, MD[1], Lauren E. Rosen, MD[2], Vijaya Reddy, MD[2], David J. Cimbaluk, MD[2], and Paolo Gattuso, MD[2]

- Estudio retrospectivo
- Objetivo: evaluar la incidencia y las características clínico-patológicas de tumores sincrónicos (AML y CCR) en pacientes sin TS.
- Productos de nefrectomía radical con diagnóstico de AML y CCR, de 1995 a mayo del 2013.
- De 19 casos de AML, 9 (47%) se asociaron a CCR, y la asociación más frecuente fue con CRCC.

Table 1. Histologic Subtypes of AML.

Histological Subtype of AML	Number of Patients
Triphasic	14
Leiomyomatous	4
Mixed	1*

Abbreviation: AML, angiomyolipoma.
*Patient with TSC and AMLs with a spectrum of histologic patterns including triphasic, leiomyomatous, and epithelioid patterns.

Table 3. Clinicopathologic Features of Concurrent Sporadic AML and RCN.

Patient	Age	Sex	Laterality of AML and RCN	Type of RCC	Type of AML	Other Malignancies
1	87	F	Right	Papillary	Triphasic	Acute lymphoblastic leukemia
2	69	F	Left	Papillary	Triphasic	None
3	64	F	Left	Papillary	Leiomyomatous	Colon and breast cancer
4	53	F	Right	Clear cell	Triphasic	None
5	49	F	Left	Papillary	Triphasic	None
6	66	F	Left	Clear cell	Triphasic	None
7	53	F	Right	Clear cell	Triphasic	None
8	66	F	Right	Clear cell	Triphasic	None

Abbreviation: AML, angiomyolipoma; RCN, renal cell neoplasm; RCC, renal cell carcinoma.

Evidence Supporting a Lymphatic Endothelium Origin for Angiomyolipoma, a TSC2^{-} Tumor Related to Lymphangioleiomyomatosis

Michael Yue,* Gustavo Pacheco,* Tao Cheng,* Jefferine Li,* Yitang Wang,* Elizabeth P. Henske,† and Lucia Schuger*

From the Department of Pathology, The University of Chicago, Chicago, Illinois; and the Department of Medicine,† Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts*

our understanding of their pathogenesis lacks an identified cell of origin. We used an AML-derived cell line to determine whether TSC2 restitution brings about the cell type from which AML arises. We found that AML cells express lymphatic endothelial cell markers consistent with lymphatic endothelial cell precursors *in vivo* and *in vitro*. Moreover, on TSC2 correction, AML cells mature into adult lymphatic endothelial cells and have functional attributes characteristic of this cell lineage, suggesting a lymphatic endothelial cell of origin for AML. These effects are dependent on TSC2-mediated mechanistic target of rapamycin inactivation. Finally, we demonstrate the *in vitro* effectiveness of norcantharidin, a lymphangiogenesis inhibitor, as a potential co-adjuvant therapy in the treatment of AML. *(Am J Pathol 2016, 186: 1825—1836; http://dx.doi.org/10.1016/j.ajpath.2016.03.009)*