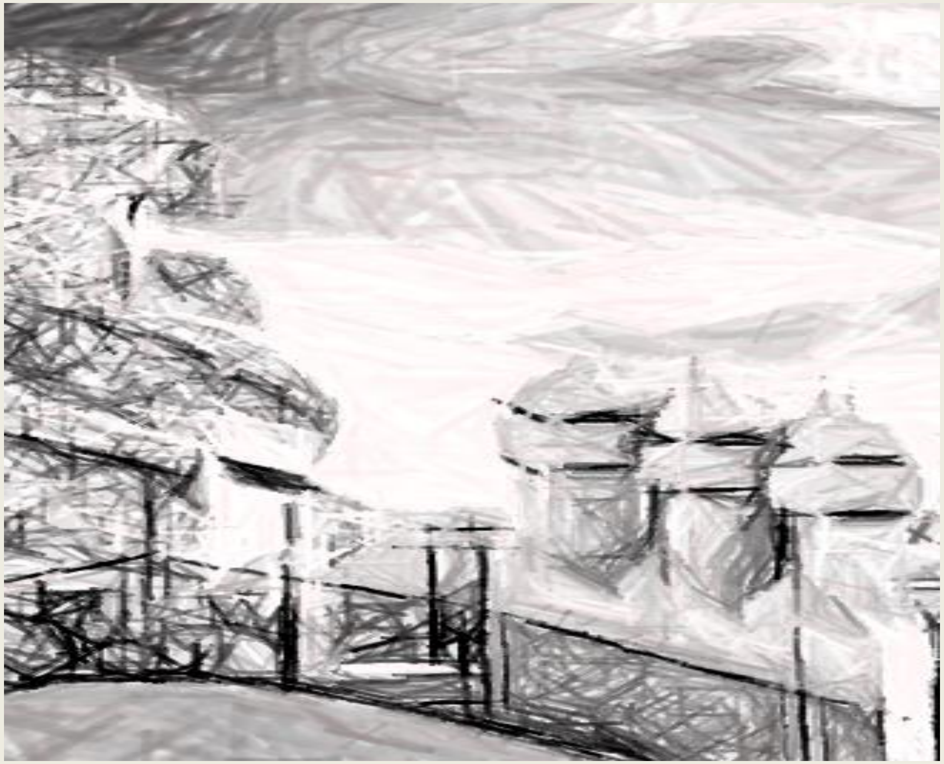
ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΙΑ
ΠΥΡΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ
ΚΑΙ ΜΟΡΙΑΚΗΣ ΑΠΕΙΚΟΝΙΣΗΣ
(ΕΕΠΙ&ΜΑ)

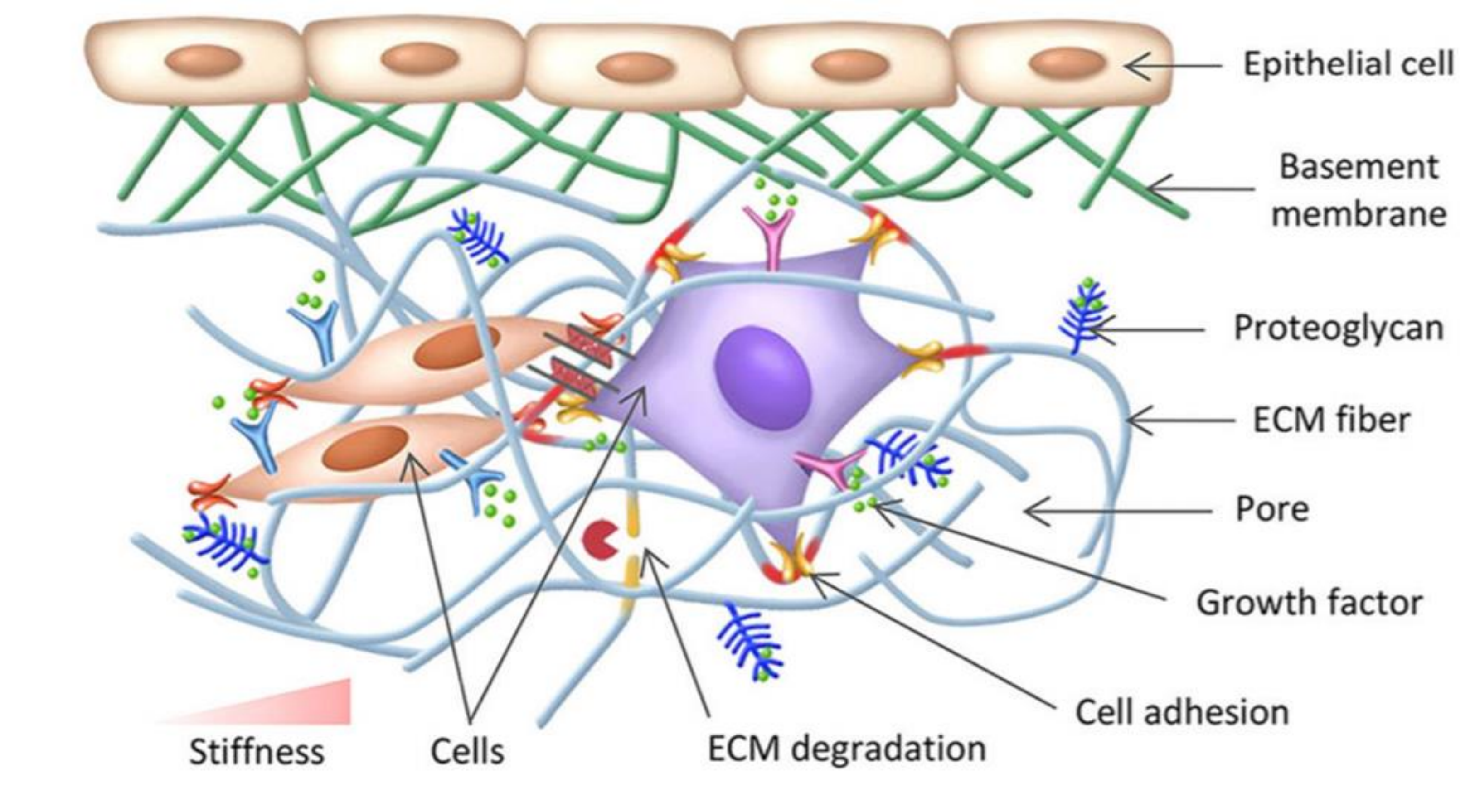
Σεμινάριο Συνεχιζόμενης Ιατρικής Εκπαίδευσης ΕΕΠΙ&ΜΑ
«Ενδιαφέρουσες Εξελίξεις στην Πυρηνική Ιατρική από τα Διεθνή Συνέδρια
(EANM, SNMMI, RSNA) – Highlights 2020»
Αθήνα – Ερρίκος Ντυνάν Hospital Center | Σάββατο, 8 Φεβρουαρίου 2020

EANM 2019
Ο ρόλος των εξωκυττάριων μακρομορίων (extracellular matrix) στον καρκίνο και σε άλλες παθολογικές οντότητες

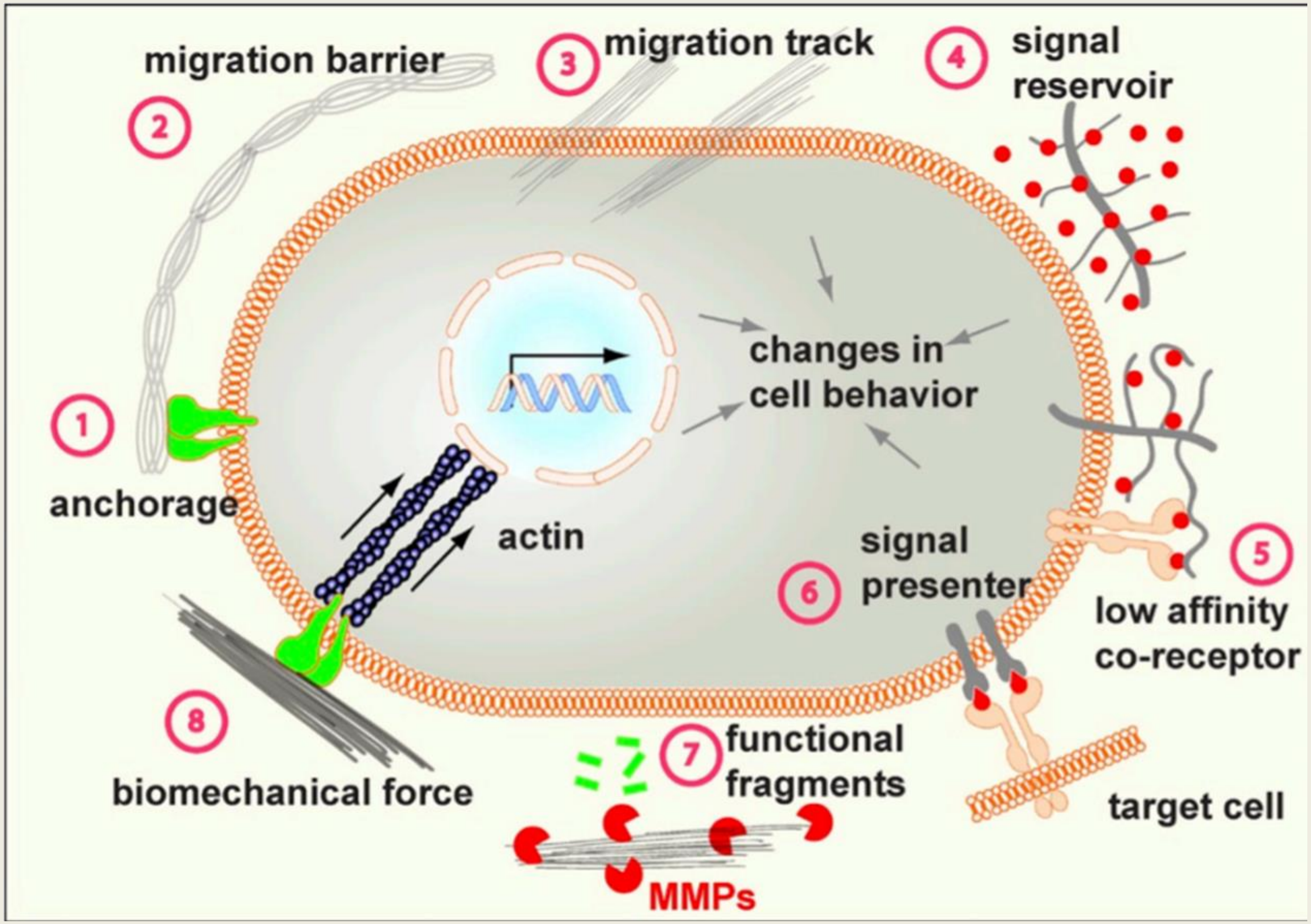


ΕΞΑΔΑΚΤΥΛΟΥ ΠΑΡΑΣΚΕΥΗ
Πυρηνικός Ιατρός, MSc
Γ΄ Εργ. Πυρηνικής Ιατρικής Α.Π.Θ.
Γ.Ν. “Παπαγεωργίου”

ΝΟΣΟΚΟΜΕΙΟ ΠΑΠΑΓΕΩΡΓΙΟΥ
ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΟΝΙΚΗΣ

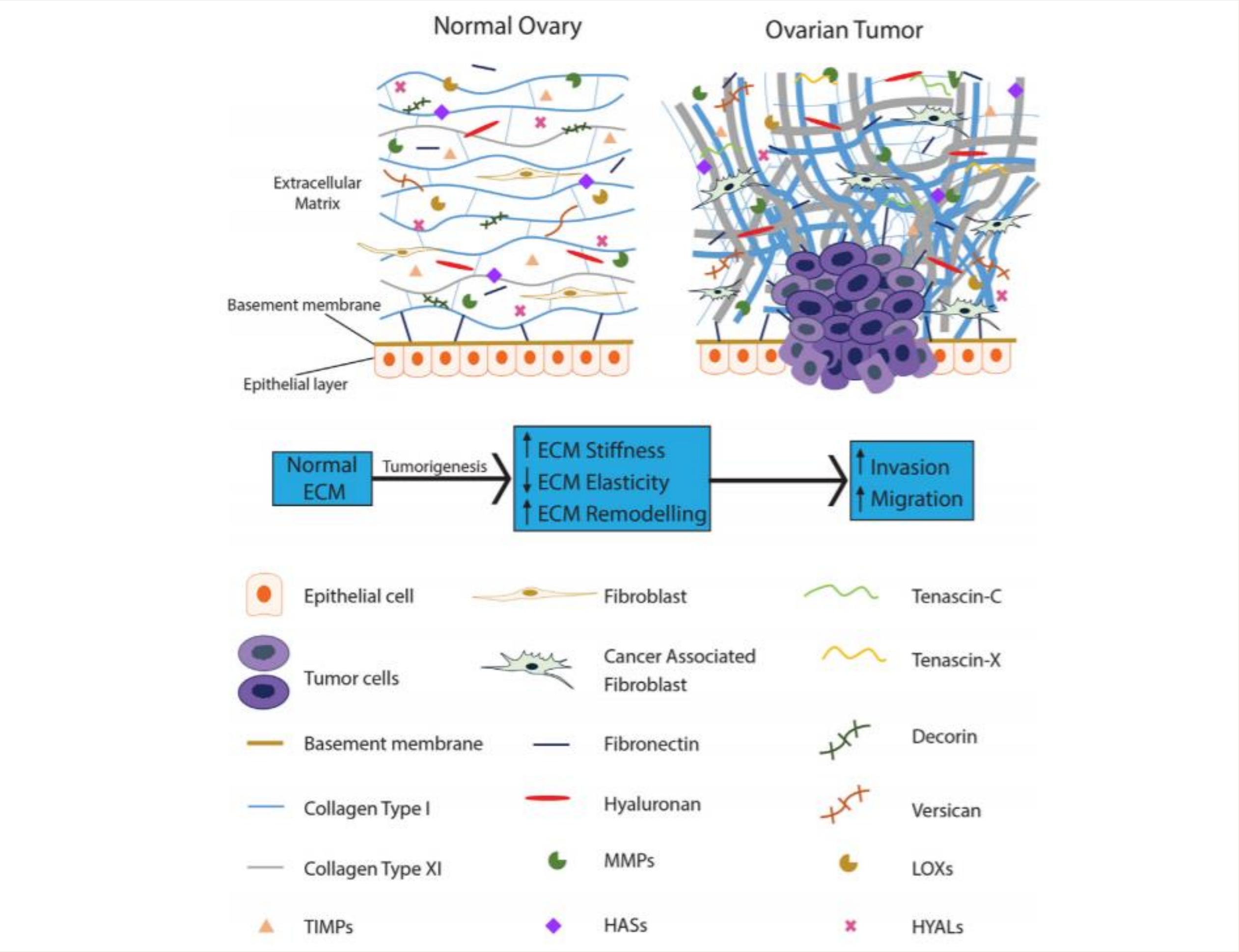


Huang G. Chem Rev. 2017 October 25

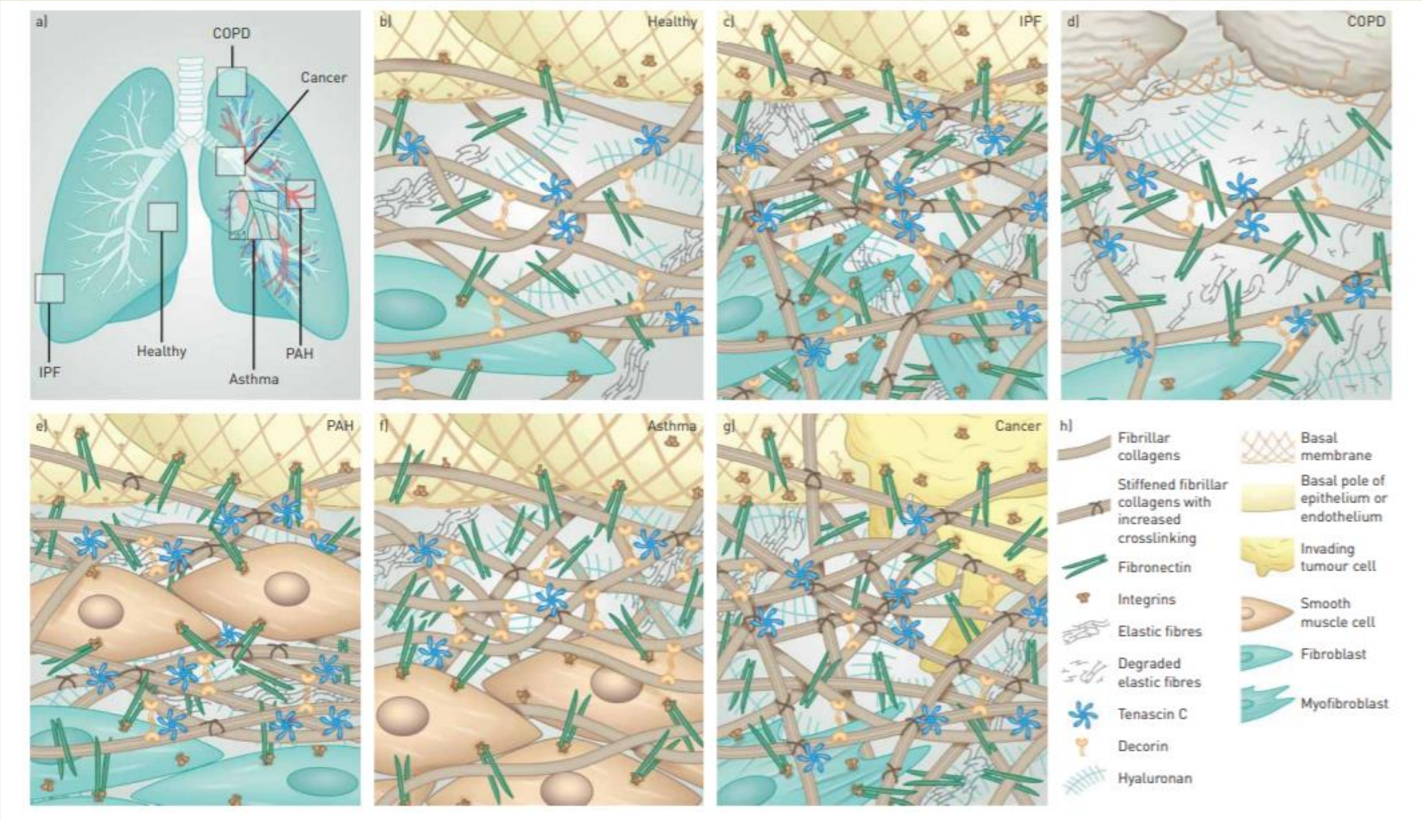


Lu P, et al. J Cell Biol 2012

How ECM is affected in cancer



Cho A. Front. Oncol., 02 November 2015



Burgstaller G. Eur Respir J 2017

What do these have in common?

Pancreatic cancer

Atrial fibrillation

Hepatitis C

Myocardial infarction

Crohn's disease

Radiation injury

Lupus nephritis

Scleroderma

Muscular dystrophy

Hypertrophic cardiomyopathy

Diabetic nephropathy

Nonalcoholic steatohepatitis

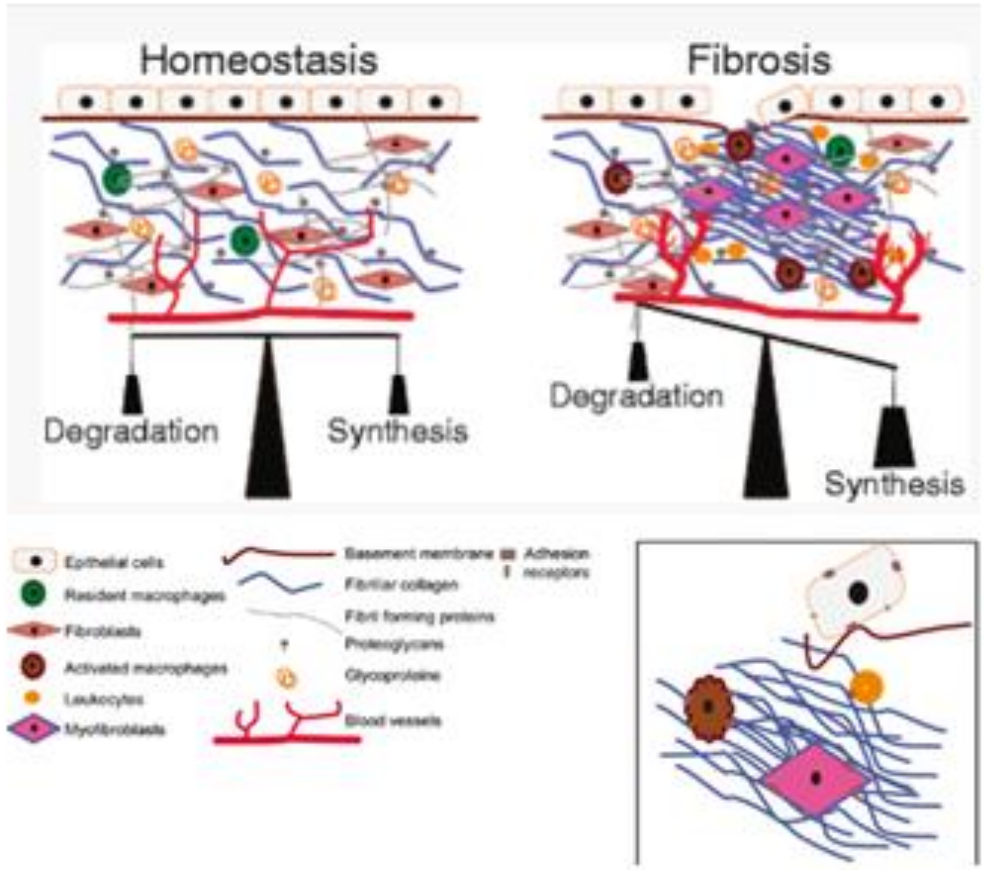
Idiopathic pulmonary fibrosis

Alcoholic liver disease

Atherosclerosis

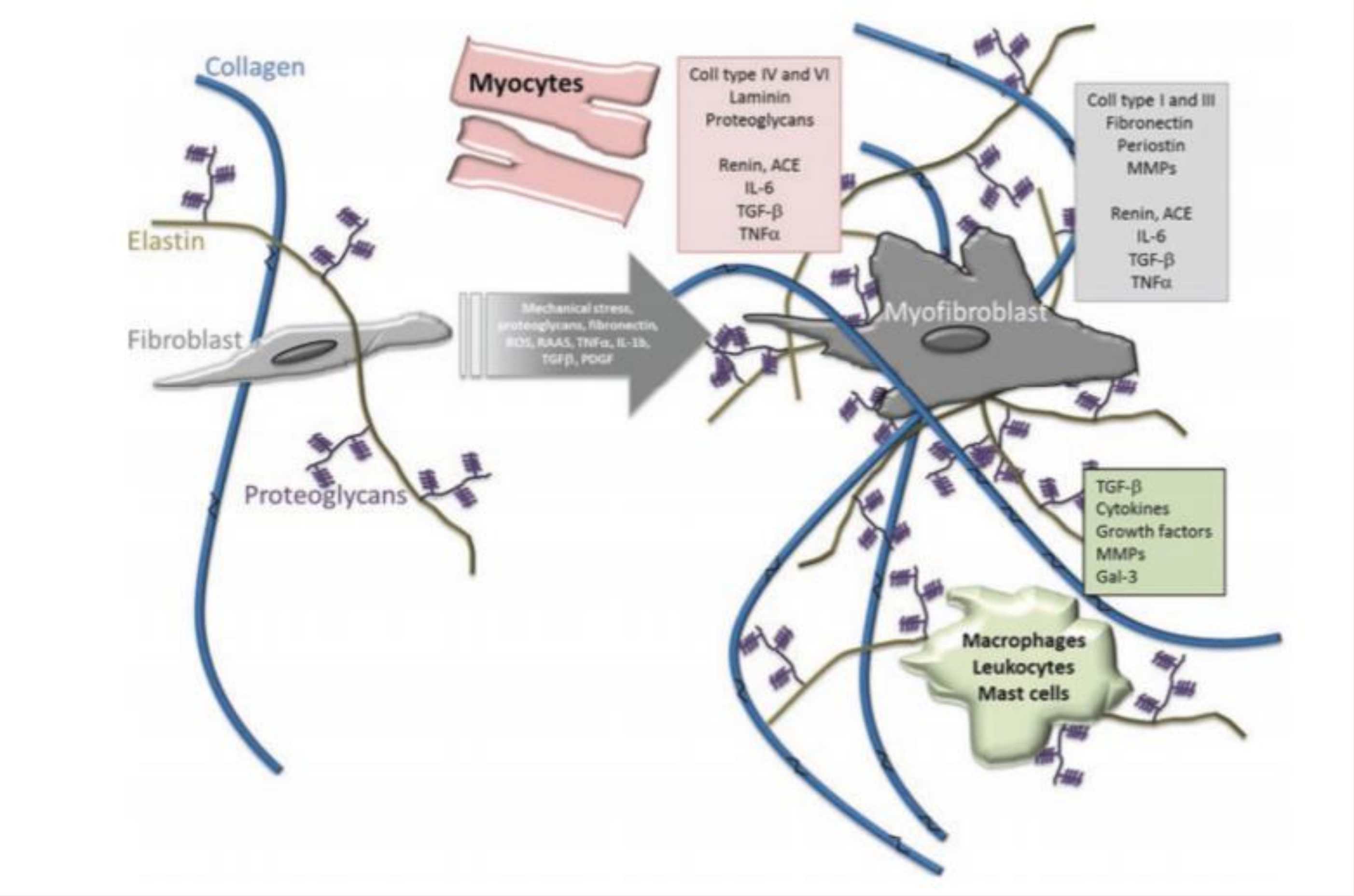
Organ Fibrosis

Peter Caravan
Molecular Imaging of Collagen and Oxidized Collagen in Fibrosis
EANM 2019



Coelho NM.& McCulloch CA. Cell Tissue Res 2016

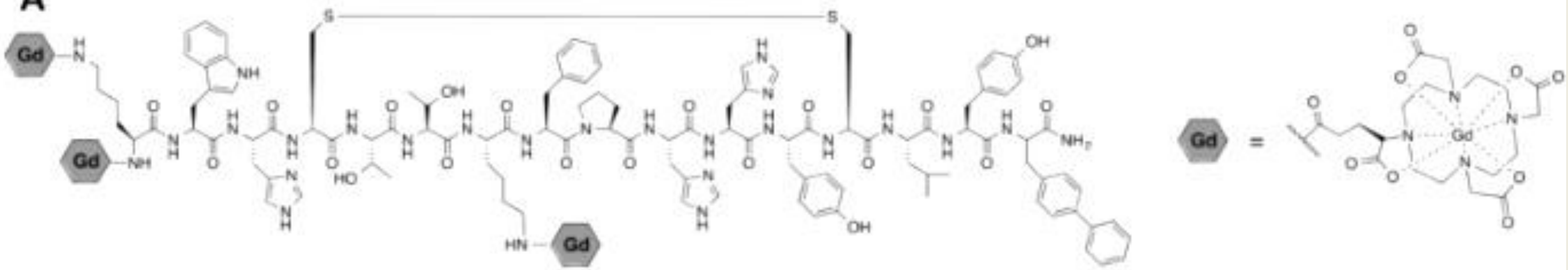
Myocardial Fibrosis



Pinkert M. Adv Exp Med Biol. 2018

Type I collagen targeted probes to image fibrosis

A



- Increased type I collagen is hallmark of fibrosis, 10s of μM in disease
- Common target useful for liver, lung, heart, cancers
- Use phage display to identify collagen type I-specific peptides

Angew Chem 2007, 46:8171, Radiology 2008, 247:786, J Hepatol 2012; 57:549-55, J Hepatol 2013; 59:992-8. Am J Resp Cell Mol Biol. 2013; 49:1120-6. J Hepatol 2015; 63:689-96. Hepatology 2017;65:1015-25. Sci Reports. 2017 Aug 14;7(1):8114. Radiology 2018;287(2):581-589

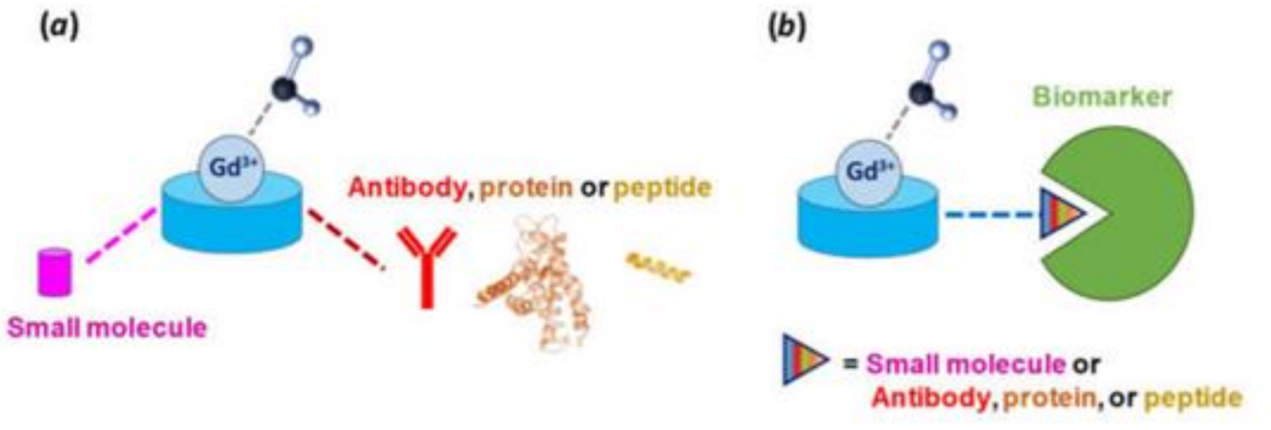
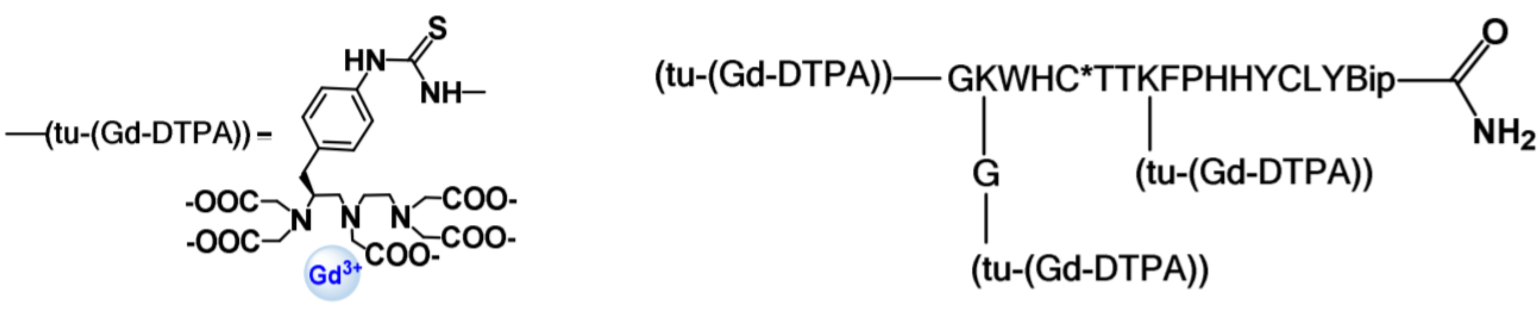
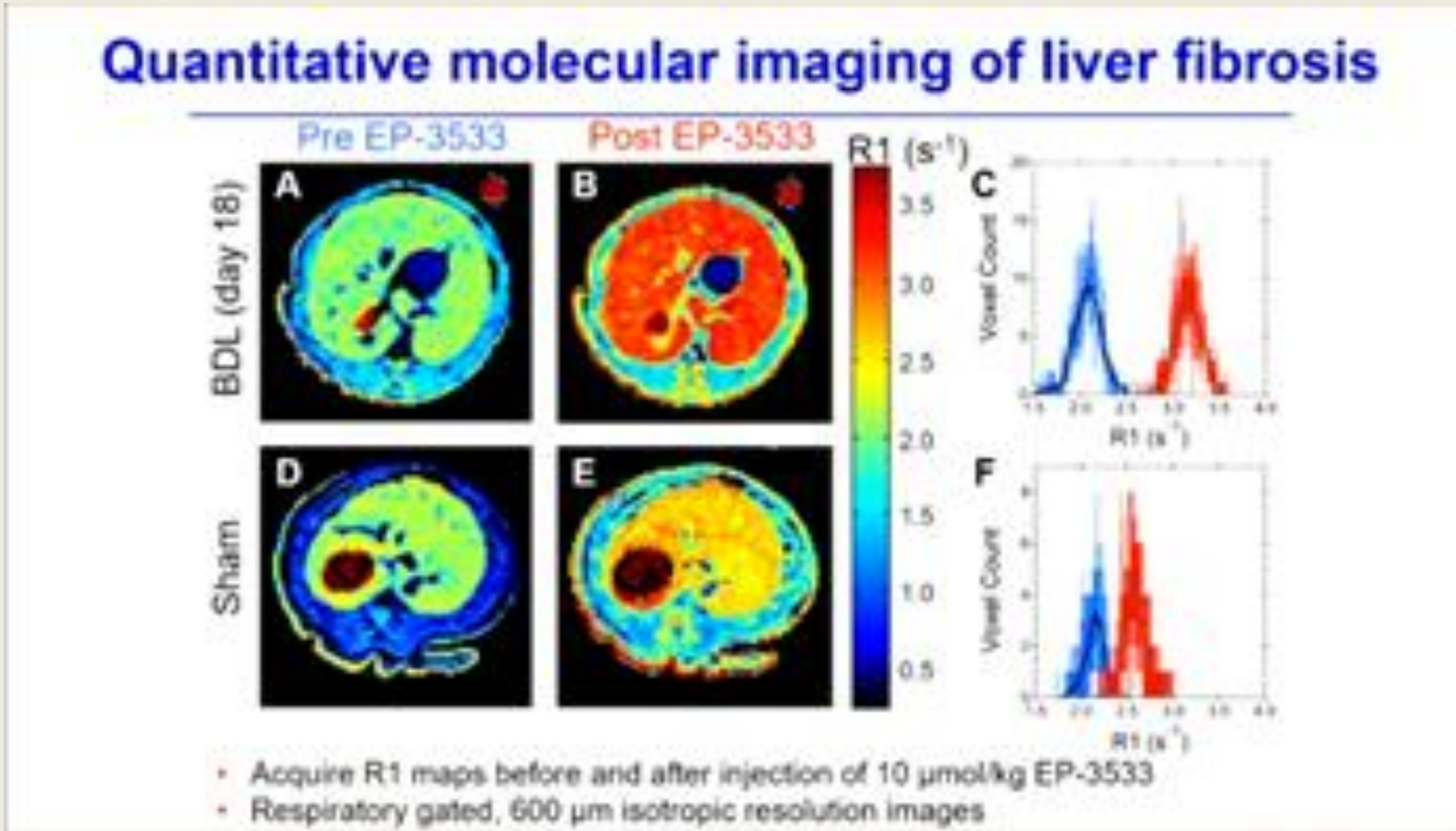


Figure 2. Schematic representation of targeted contrast agents (**a**) and their interaction with the specific biomarker (**b**).



EP-3533

Lacerda S. Inorganics 2018



Farrar C. et al. J Hepatol. 2015 September

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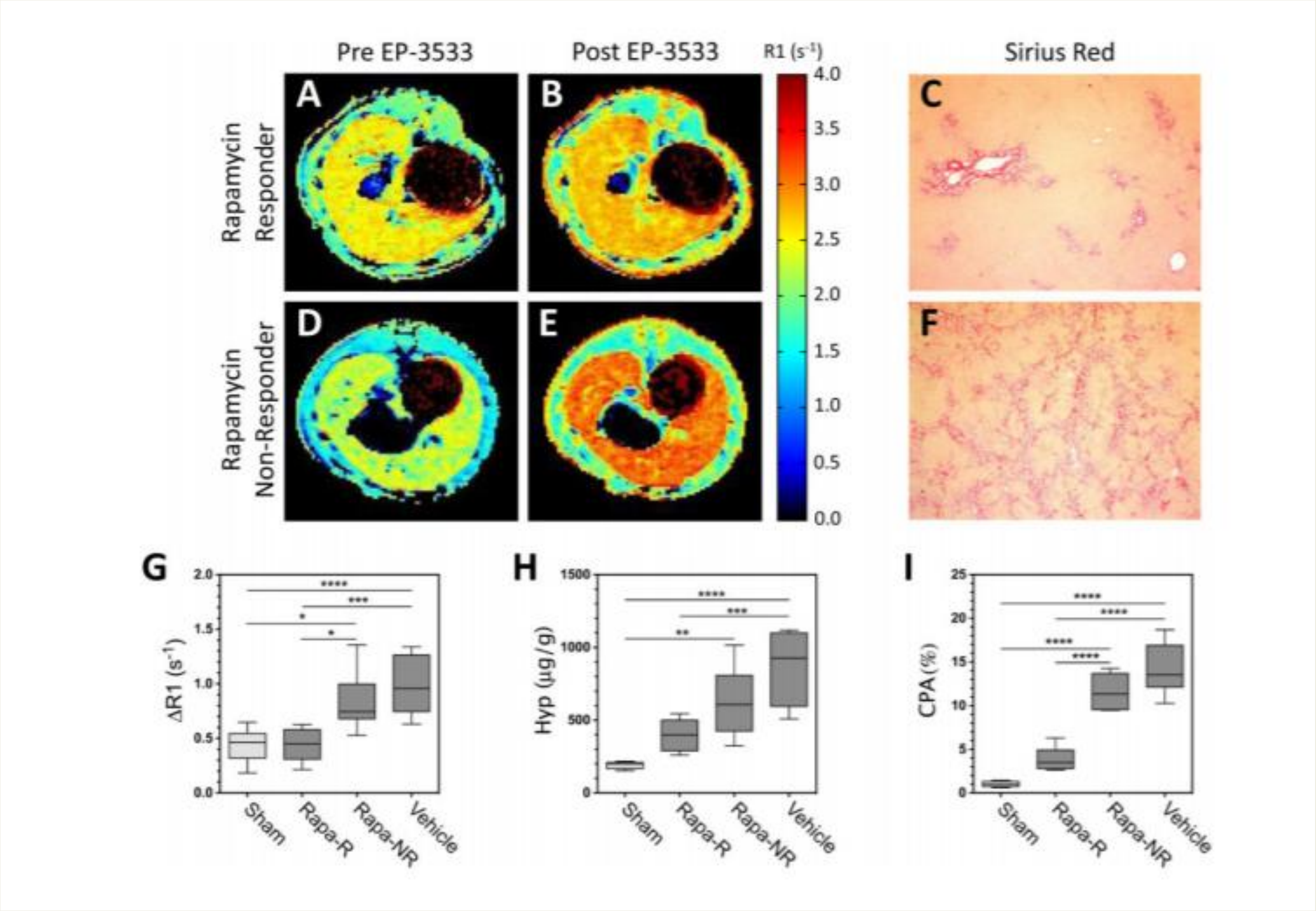

Farrar C. et al. J Hepatol. 2015 September

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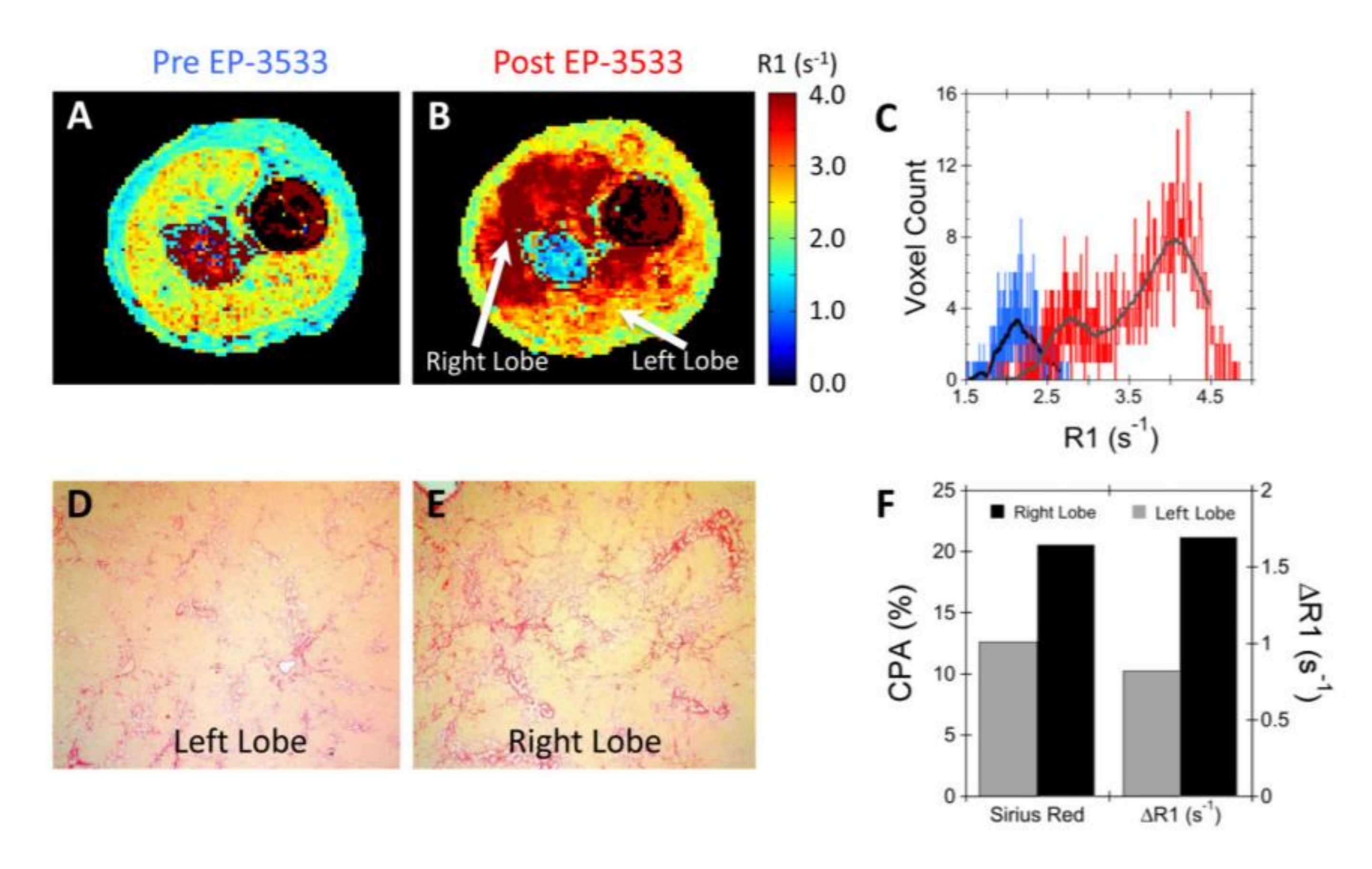

Farrar C. et al. J Hepatol. 2015 September

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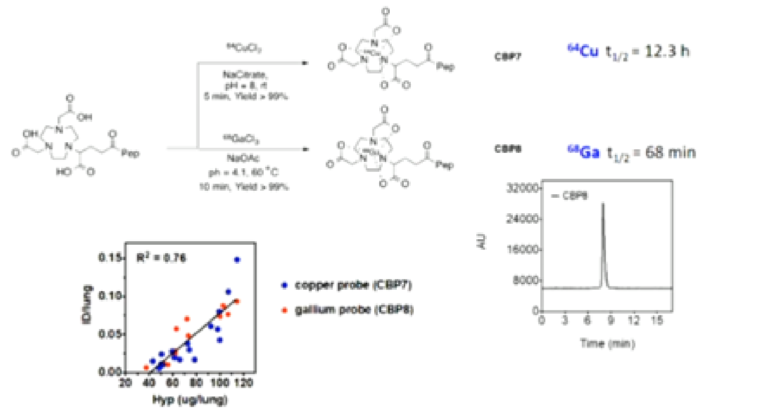
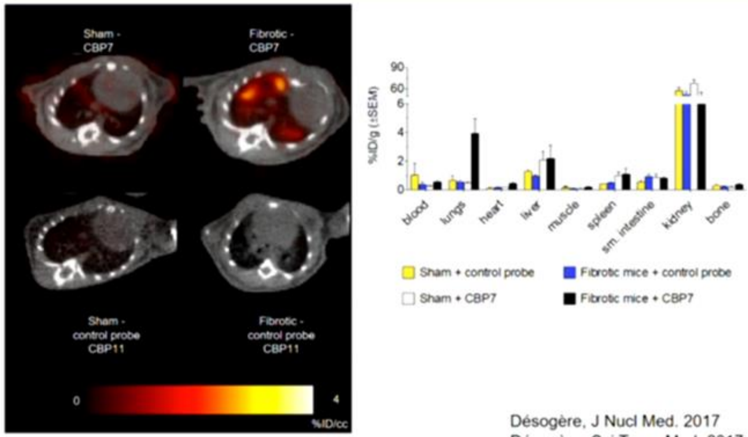
PET imaging of type I collagen



Application in pulmonary fibrosis



Désogère, J Nucl Med. 2017
Désogère, Sci Trans Med. 2017

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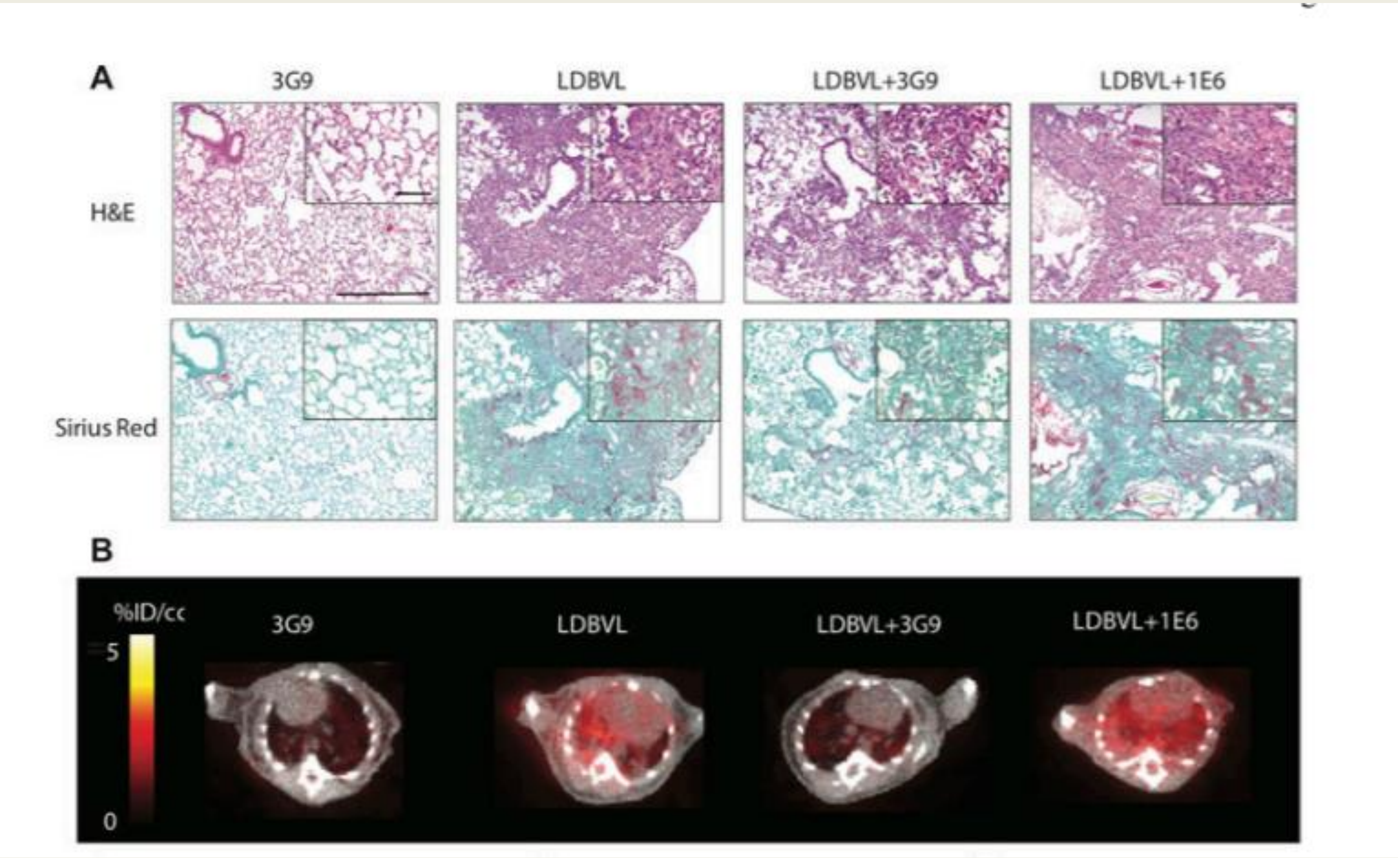

Désogère et al. Sci Transl Med 2018

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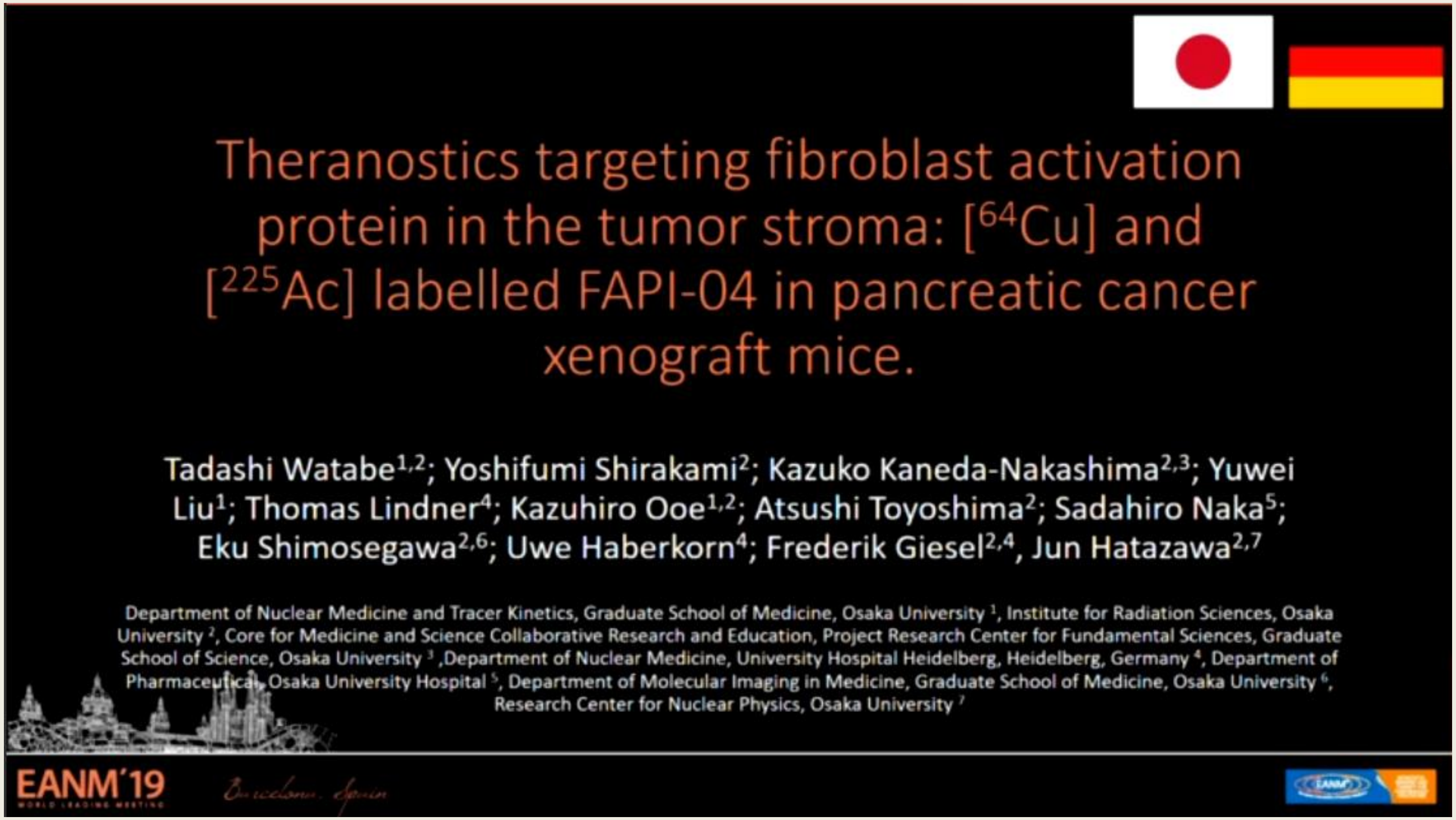
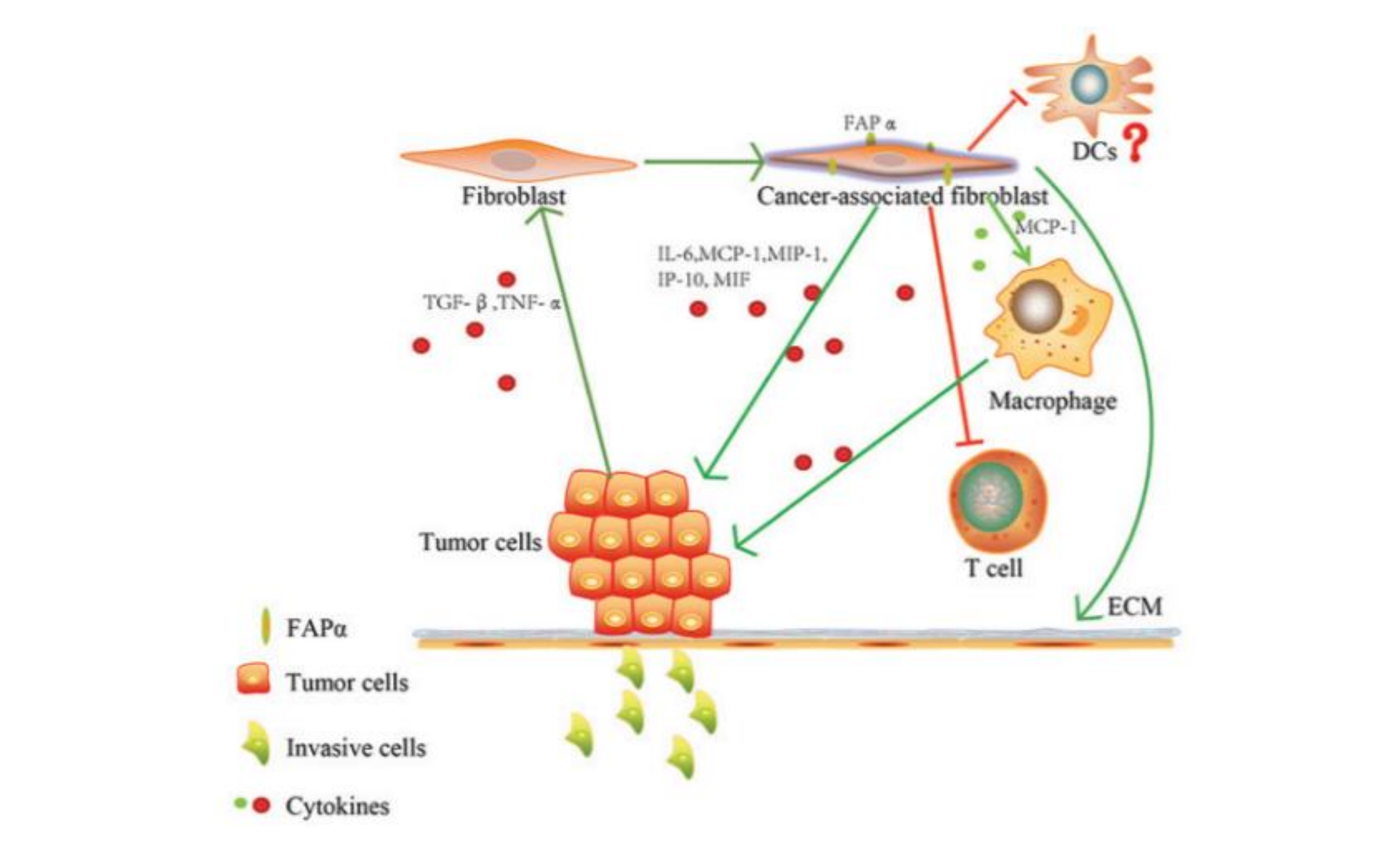
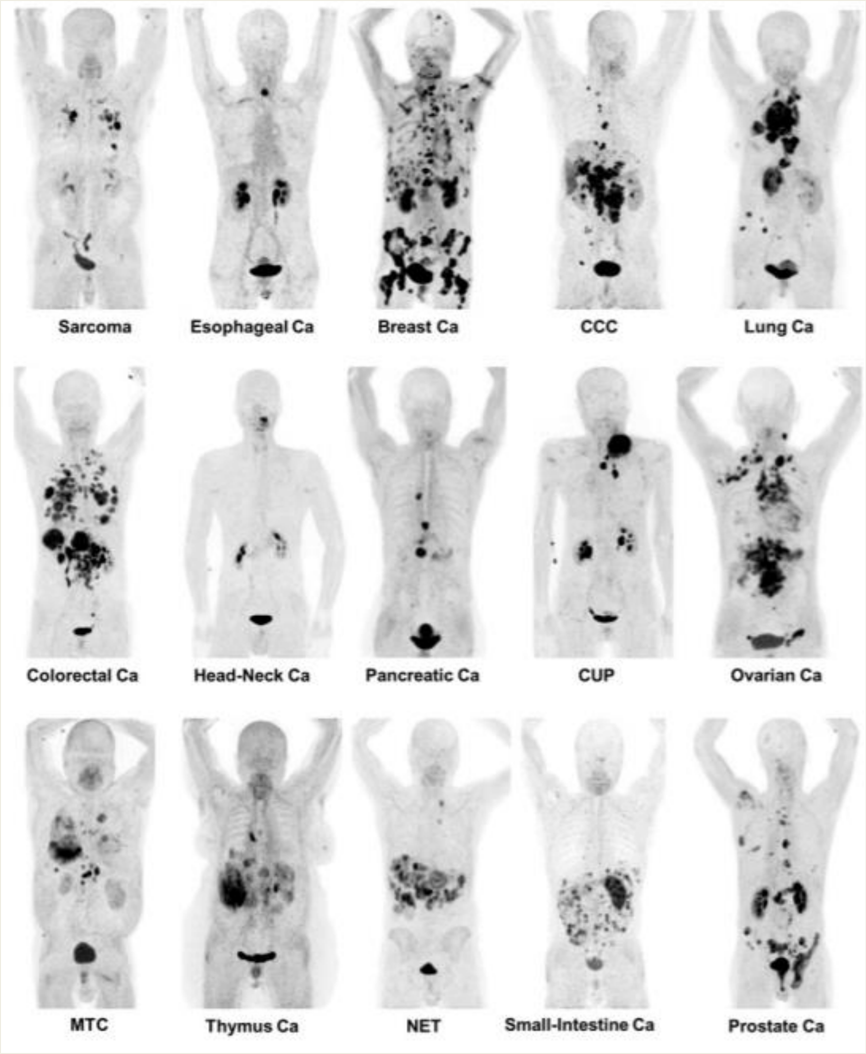

Theranostics targeting fibroblast activation protein in the tumor stroma: [64Cu] and [225Ac] labelled FAPI-04 in pancreatic cancer xenograft mice.
Tadashi Watabe[1,2]; Yoshifumi Shirakami[2]; Kazuko Kaneda-Nakashima[2,3]; Yuwei Liu[1]; Thomas Lindner[4]; Kazuhiro Ooe[1,2]; Atsushi Toyoshima[2]; Sadahiro Naka[5]; Eku Shimosegawa[2,6]; Uwe Haberkorn[4]; Frederik Giesel[2,4], Jun Hatazawa[2,7]
Department of Nuclear Medicine and Tracer Kinetics, Graduate School of Medicine, Osaka University [1], Institute for Radiation Sciences, Osaka University [2], Core for Medicine and Science Collaborative Research and Education, Project Research Center for Fundamental Sciences, Graduate School of Science, Osaka University [3], Department of Nuclear Medicine, University Hospital Heidelberg, Heidelberg, Germany [4], Department of Pharmaceutical, Osaka University Hospital [5], Department of Molecular Imaging in Medicine, Graduate School of Medicine, Osaka University [6], Research Center for Nuclear Physics, Osaka University [7]
EANM'19
Barcelona, Spain



Zi F. et al. Mol. Med. Rep. 2015.

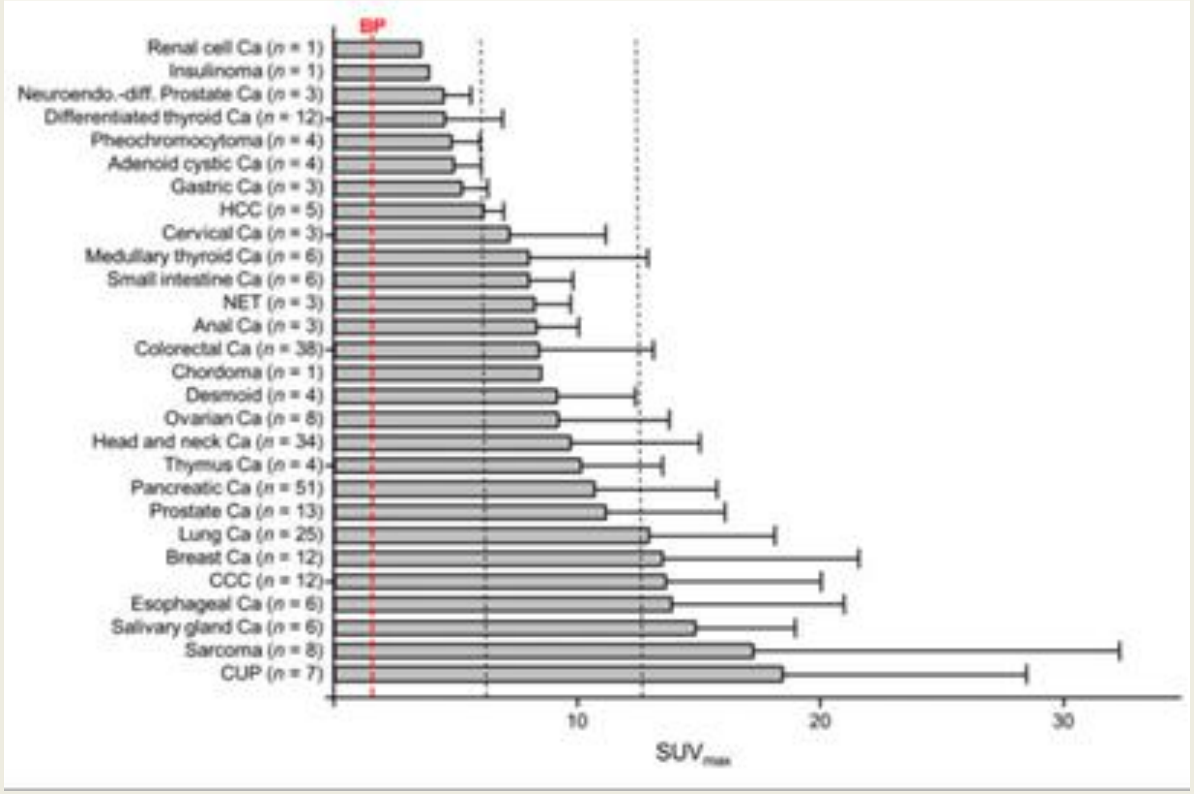
68 Ga-FAPI PET/CT: Tracer Uptake in 28 Different Kinds of Cancer

Clemens Kratochwil et al. J Nucl Med, Jun 2019

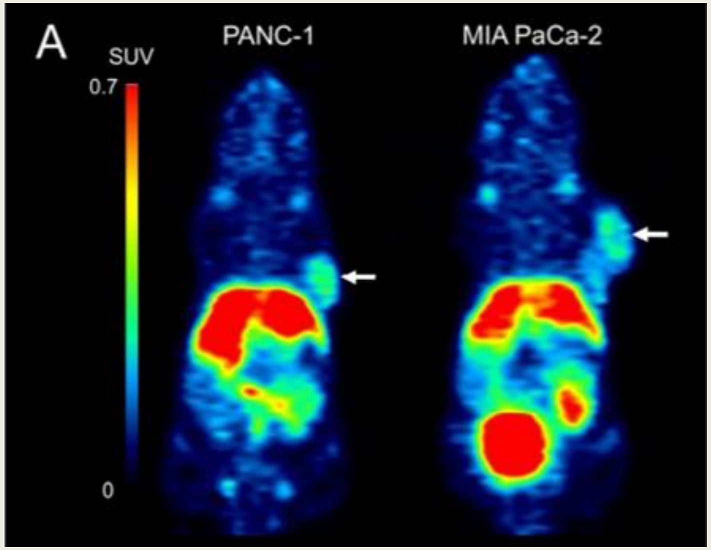


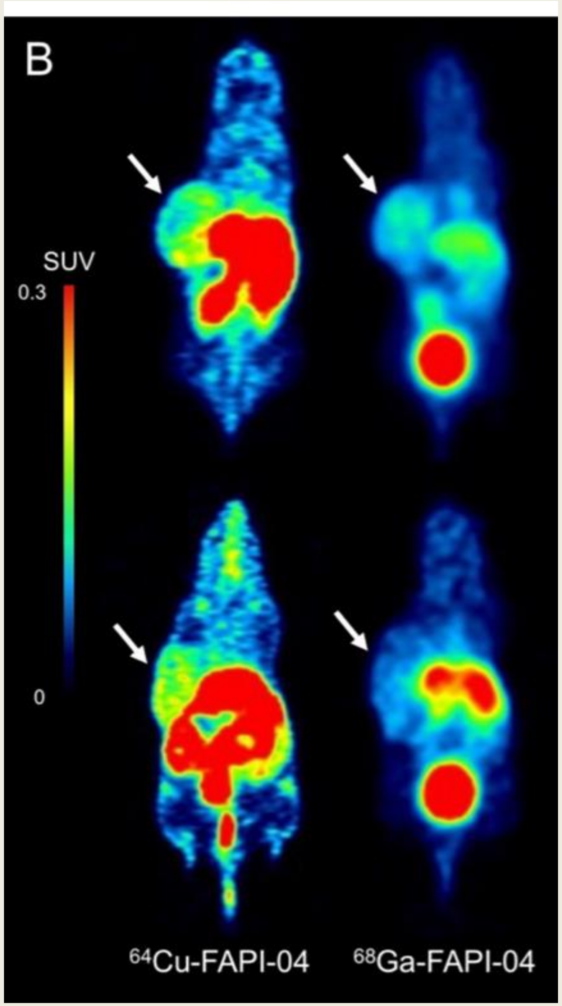
68 Ga-FAPI PET/CT: Tracer Uptake in 28 Different Kinds of Cancer

Clemens Kratochwil et al. J Nucl Med, Jun 2019

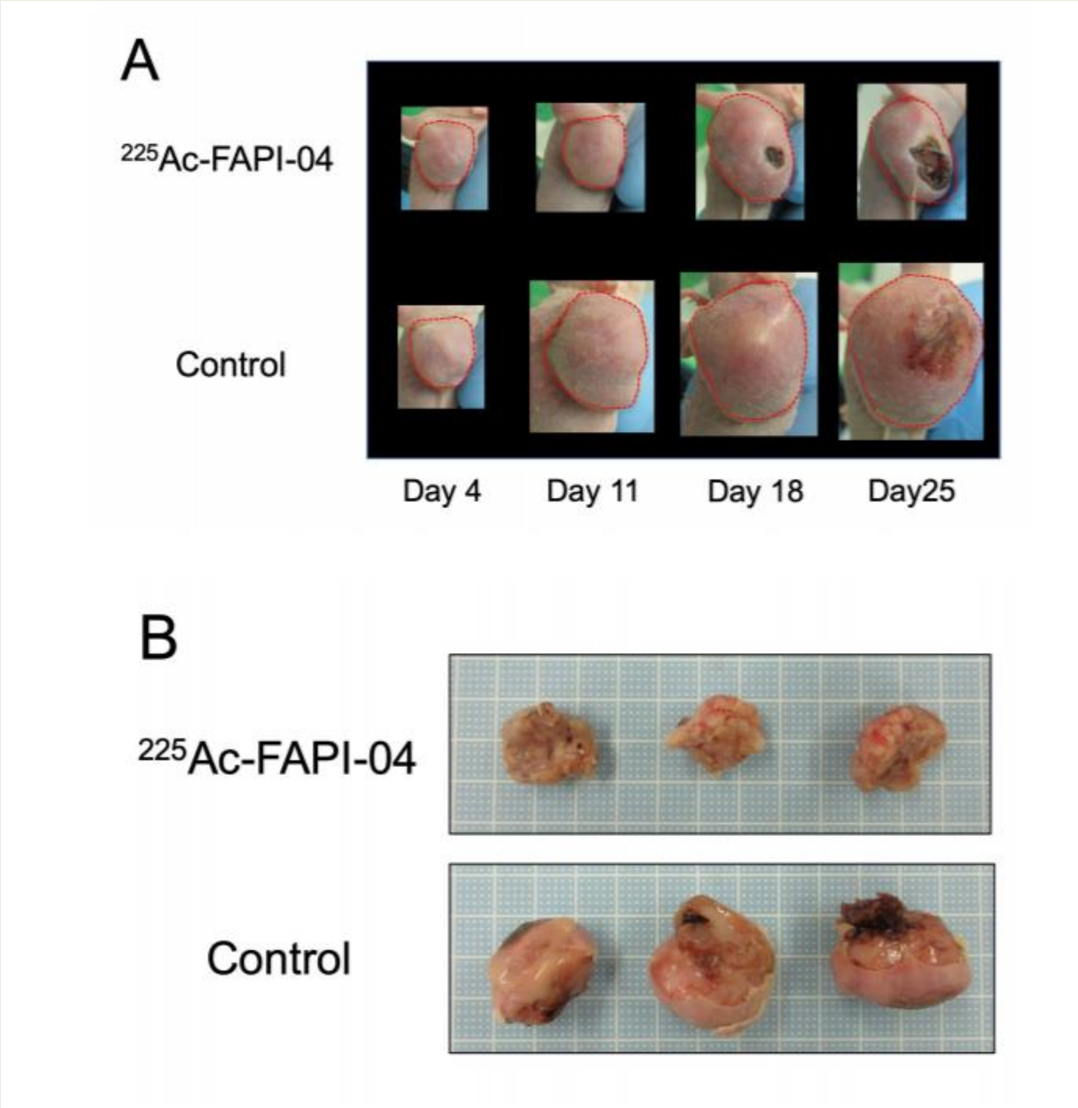


Theranostics targeting fibroblast activation protein in the tumor stroma: 64Cu- and 225Ac-labelled FAPI-04 in pancreatic cancer xenograft mouse models





Uwe Haberkorn
Imaging of Activated Fibroblasts in ECM
Eanm 2019



(A) Appearance of the xenografts after injection of 225Ac-FAPI-04 and control. A dark-brown scab was observed on the surface of the xenograft at day 18 and accompanied by mild tumor shrinkage in mice injected with 225Ac-FAPI-04.

(B) Tumor appearance after resection at day 31 (2nd cohort), with tumor size smaller in 225Ac-FAPI-04-injected mice relative to that observed in control mice.

EANM'19

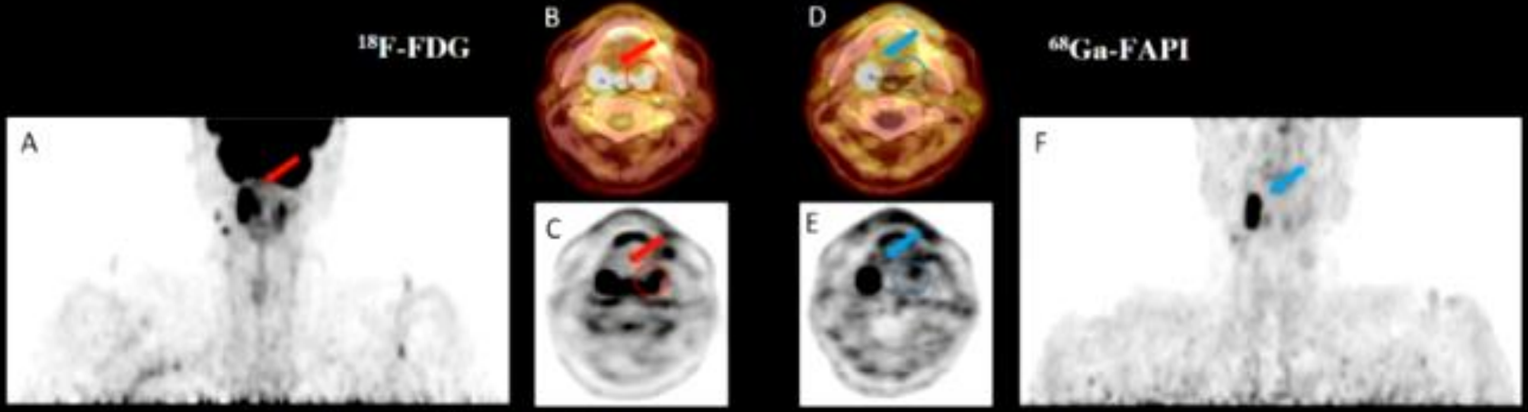
Non-invasive imaging of tumor-associated fibroblasts by ^{68}Ga-FAPI-PET/CT - first experience in head and neck cancer diagnostics

S. Serfling[1], Y. Zhi[2], A. Schirbel[1], T. Lindner[3], A. Scherzad[2], S. Hackenberg[2], E. Gerhard-Hartmann[4], U. Haberkron[3], C. Lapa[1], and A. Buck[1]

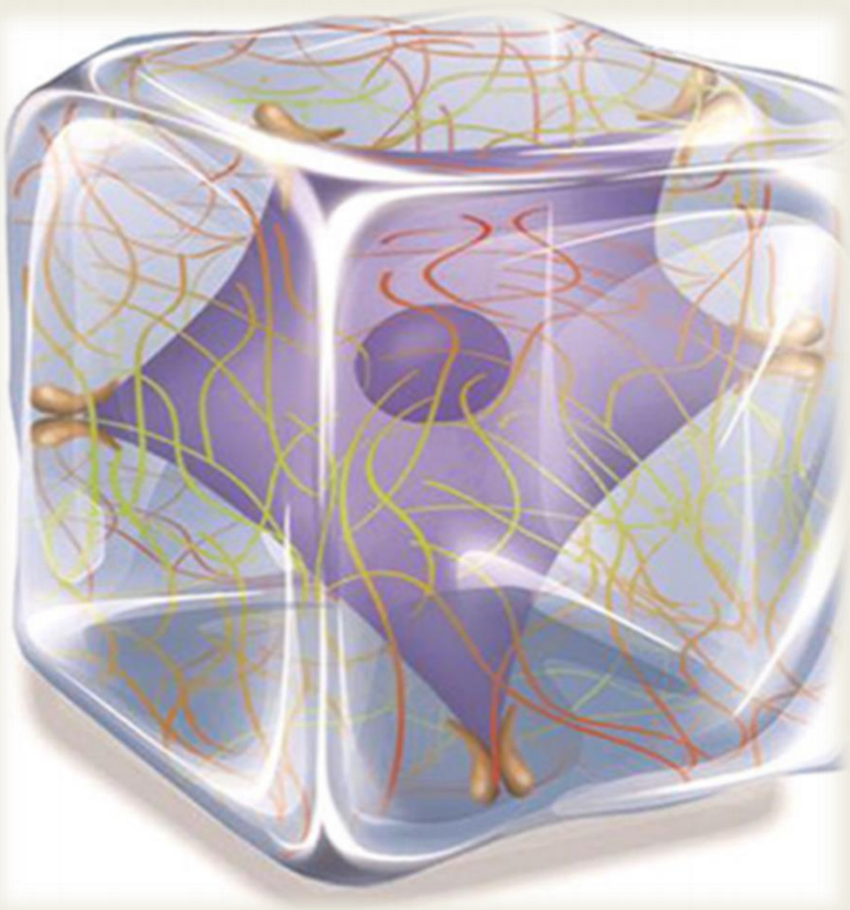
[1]Department of Nuclear Medicine, University Hospital Würzburg, Würzburg, GERMANY,
[2]Department of Otorhinolaryngology, Plastic, Aesthetic and Reconstructive Head and Neck Surgery, University Hospital Würzburg, Würzburg, GERMANY,
[3]Department of Nuclear Medicine, University Hospital Heidelberg, Heidelberg, GERMANY,
[4]Department of Pathology, University Würzburg, Germany, Würzburg, GERMANY

EANM'19

- 6 patients with the **primary diagnosis of a tonsil carcinoma** underwent staging with **^{18}F-FDG-PET/CT and ^{68}Ga-FAPI-PET/CT**.
- In all patients, the **new FAP-tracer detects the primary** (arrow) und shows, in contrast to FDG, **no significant uptake in the contralateral tonsil** (circle) (TBR_{peak} (FAPI) 3.8 +/- 1.5; (FDG) 2.7 +/- 1.0).
- **FAP-specific tracer uptake** in the primary tumor could be **confirmed by immuno-histochemistry**.



In comparison to ^{18}F-FDG, ^{68}Ga-FAPI showed no increased uptake in (chronic) inflammatory tissue, such as Waldeyer's pharyngeal ring. This improves the detection of tonsil carcinomas and leads to a high sensitivity and specificity of diagnostics.



Huang G. et al., Chem Rev. 2017

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Αθήνα – Ερρίκος Ντυνάν Hospital Center | Σάββατο, 8 Φεβρουαρίου 2020

ΣΑΣ
ΕΥΧΑΡΙΣΤΩ
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