tebubio

Facilitators of Life Sciences Research

Decoding the Tumor Microenvironment: Advanced Proteomics for Biomarker Discovery & Immunotherapy Insights

Dr Valerie Jones

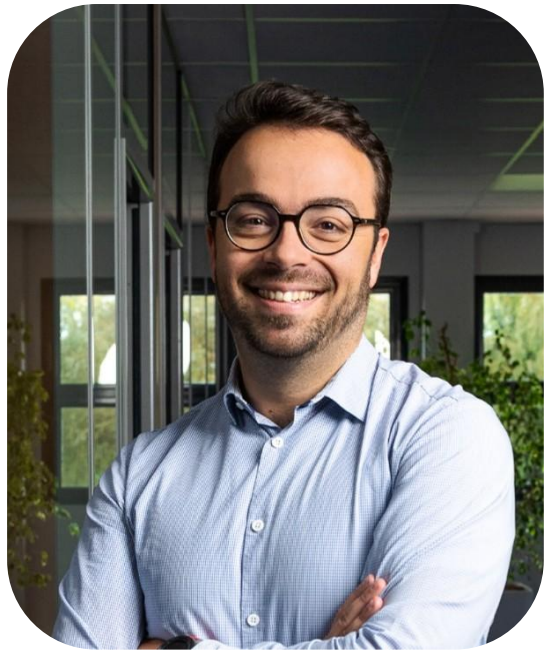
Sales, Marketing & Technical support Director @ RayBiotech

Our Team Today

Speaker

Valerie Jones , PhD

Sales, Marketing & Technical support
Director @ Raybiotech



Session Moderator

Frédéric Samazan

Event Manager

Webinar Agenda

1. Tebubio at a glance
2. Speaker Introduction
3. Raybiotech presentation

Webinar Agenda

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We facilitate Life Sciences Research everyday

and contribute to a brighter future

We are Pan-European

- Founded in 1953
- Family-owned
- 100+ Employees
- Local offices across Europe

We Act for Life Sciences

- Innovation is in our DNA
- Contract Research Services Lab
- Part of EU Life Sciences ecosystems

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PIANO NAZIONALE DI RIPRESA E RESILIENZA
FRANCE 2030
MUR Ministero dell'Università e della Ricerca
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ASE BIO
BIO DEUTSCHLAND

We Care

- Ethical, compliant and transparent sourcing (from OEMs only)
- Animal welfare policy
- Corporate Social Responsibility (ISO 14001 / ISO 9001, Decarbonation Program)

With Tebubio, advance your Research Projects faster

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Order advanced biological solutions

A large portfolio

Access to **over 1,300,000 standard** references and **non-catalogue** ones.

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Get solutions from **reputable global suppliers**, carefully selected for their **relevance**, **ethical** and **legal** compliance (e.g. Animal Welfare).

Dedicated scientific support

Our **Scientific Team** guides you to source, select and use solutions.

Outsource and Accelerate research

Based in Europe

Our **Teams** and **Contract Research Services Lab** are in Europe.

Team committed to success

A **PhD project manager** ensures the success of your project from A to Z.

Strong expertise in Life sciences

- **RNA based** therapeutic discovery
- **in vitro** modeling
- **Biomarker** mapping
- **Data analysis**

Streamline your ordering process

Reliable Supply Chain Management

- **IATA**
- **Human/Animal Biological Solutions**
- **Sourcing outside** existing suppliers
- **Warehousing** services

Order from a single source

Consolidate your orders with us.

Tailored agreements

From specific **one-off terms** to **procure-to-pay**, supported by **e-procurement** solutions.

Tebubio CRS : Facilitators of Life Sciences Research

What do you want to talk about?

RNA based therapeutic discovery

Production | Delivery | Expression

in vitro modeling

Organoids | Microfluidics | 2&3D Models

Biomarker mapping

Target identification | Profiling | Quantification

Data analysis

Biostatistics | NGS | Custom

Webinar Agenda

1. Tebubio at a glance
2. Speaker Introduction
3. Raybiotech presentation

Our Speaker

Speaker

Valerie Jones , PhD

Sales, Marketing & Technical support
Director @ Raybiotech

- Dr. Valerie Jones, PhD, has a background in protein biochemistry, enzymology, and experimental pathology. Prior to joining RayBiotech, she received her post-doctoral training at Emory University where she was awarded an NRSA (National Research Service Award) grant through the National Institutes of Health to support her research on host-pathogen interactions within the intestinal epithelium.
- Prior to this, she earned her Ph.D. in Biochemistry from Louisiana State University with a focus on the enzyme kinetics of biotin carboxylase.
- At RayBiotech, she serves as Director of Sales, Marketing, and Technical Support. In her current position, Dr. Jones has been instrumental in elucidating complex biotechnological concepts, and her efforts contribute significantly to RayBiotech's mission of advancing proteomic research and applications.

Webinar Agenda

1. Tebubio at a glance
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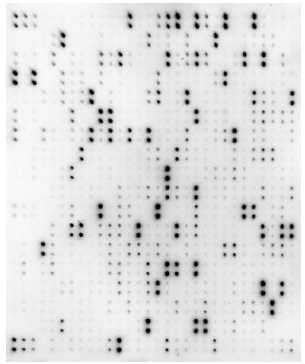
3. Raybiotech presentation

RayBiotech antibody arrays: how they work

- Allow for efficient, non-biased identification of protein profiles
- Objective screens for precise identification of key pathways and biomarkers in cancer biology
- Can be quantitative or semi-quantitative
- Antibody panels can be small & focused (10-100 proteins) or high-density (up to 8000 proteins)

Antibody Array Formats

Membrane



- Easy to handle
- Chemiluminescent detection
- Semi-quantitative

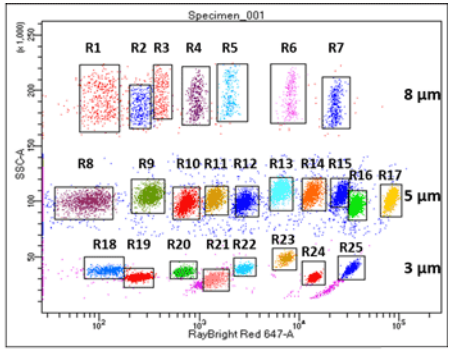
1 ml

Glass Slide

- Miniaturized – saves sample
- Fluorescent detection (scanner)
- Quantitative or semi-quantitative

100 µl

Fluorescent Microspheres



- Low sample consumption
- Fluorescent detection (flow cytometer)
- Quantitative

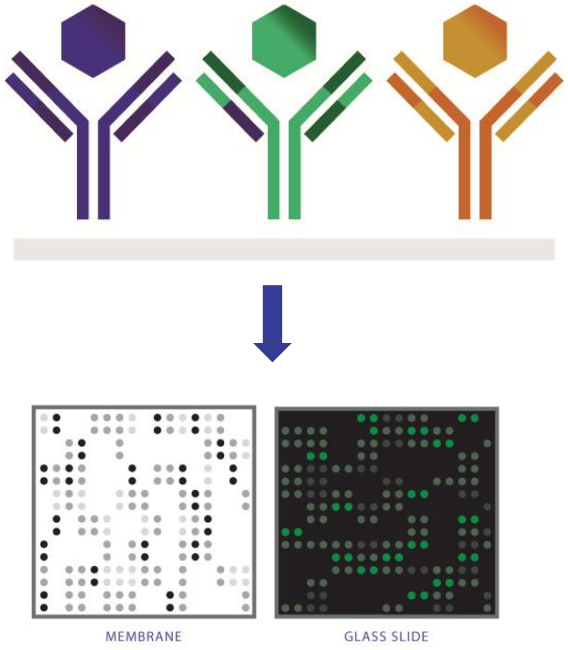
25 µl

RayBiotech
Empowering your proteomics

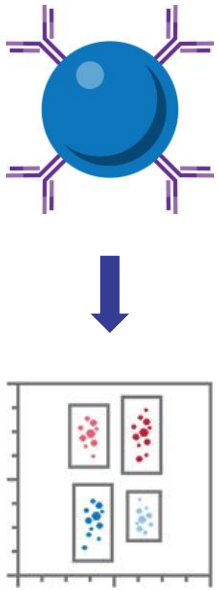
RayBio® Array Technologies

Unmatched content in multianalyte immunodetection

PLANAR ARRAYS



BEAD ARRAYS



RayPlex®

> 700 array panels in-stock for finding

- Cytokine profiles
- Autoantibody profiles
- Protein-protein interactions
- Pathway activation
- Post-translational modification profiles

25,000 publications since 2001

RayBiotech
Empowering your proteomics

How do antibody arrays help?

1. An affinity proteomic tool: Most **cost-effective** way to profile protein expression precisely
2. A screening tool: Keeps you from missing something important
3. A hypothesis generation tool: determine **where to focus next**.
4. Sensitive enough to detect many clinically relevant proteins
5. Efficient: No sample depletion required

Array Categories

Screening Arrays

1200-8000 analytes

Proteome profiling:
Unbiased queries

Targeted Arrays

10-500 analytes

Probe a **specific** pathway or molecule type:
Hypothesis-driven queries

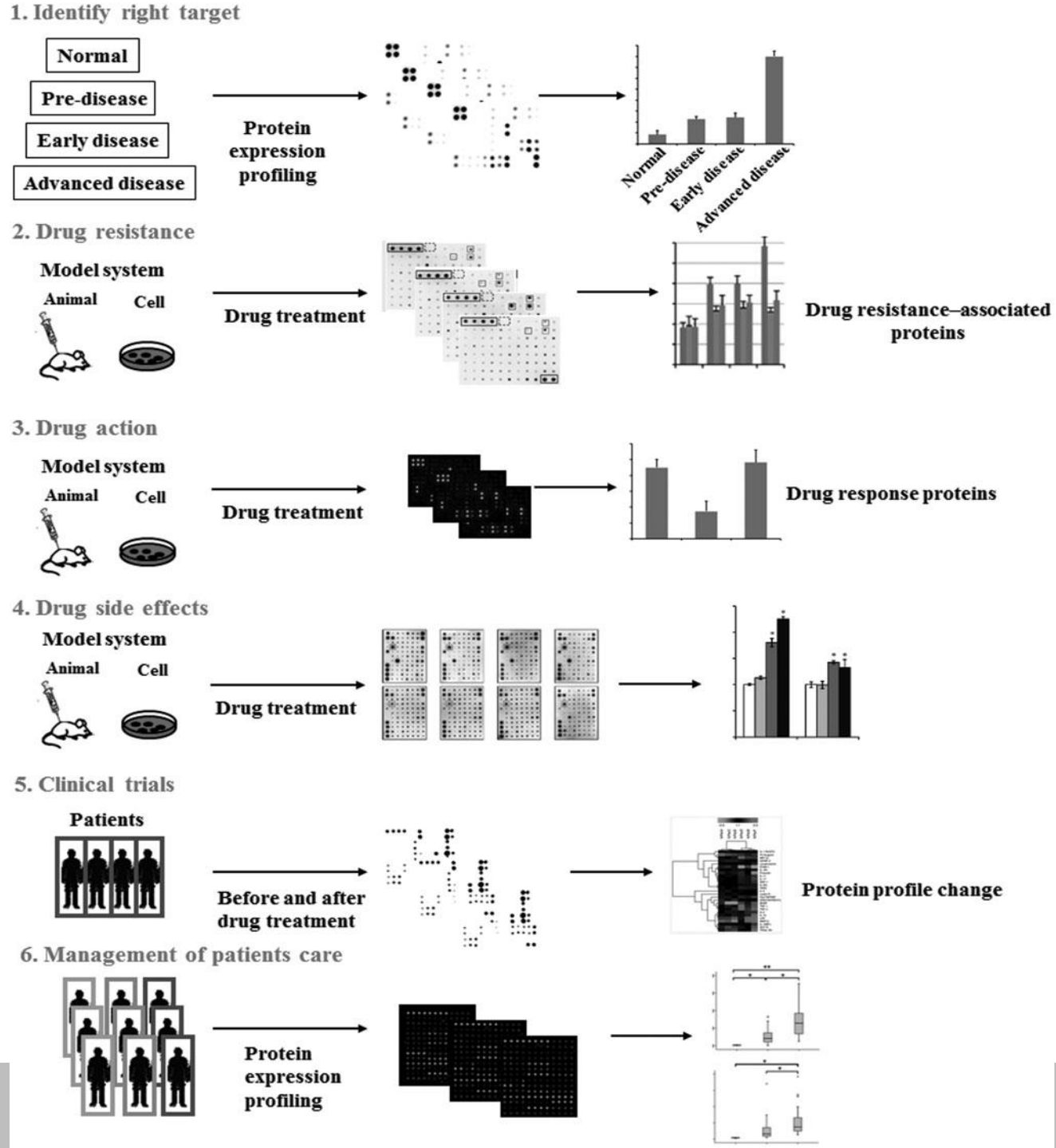
PTM Arrays

500-8000 analytes

Post-**t**ranslational **m**odification profiling:
Unbiased queries

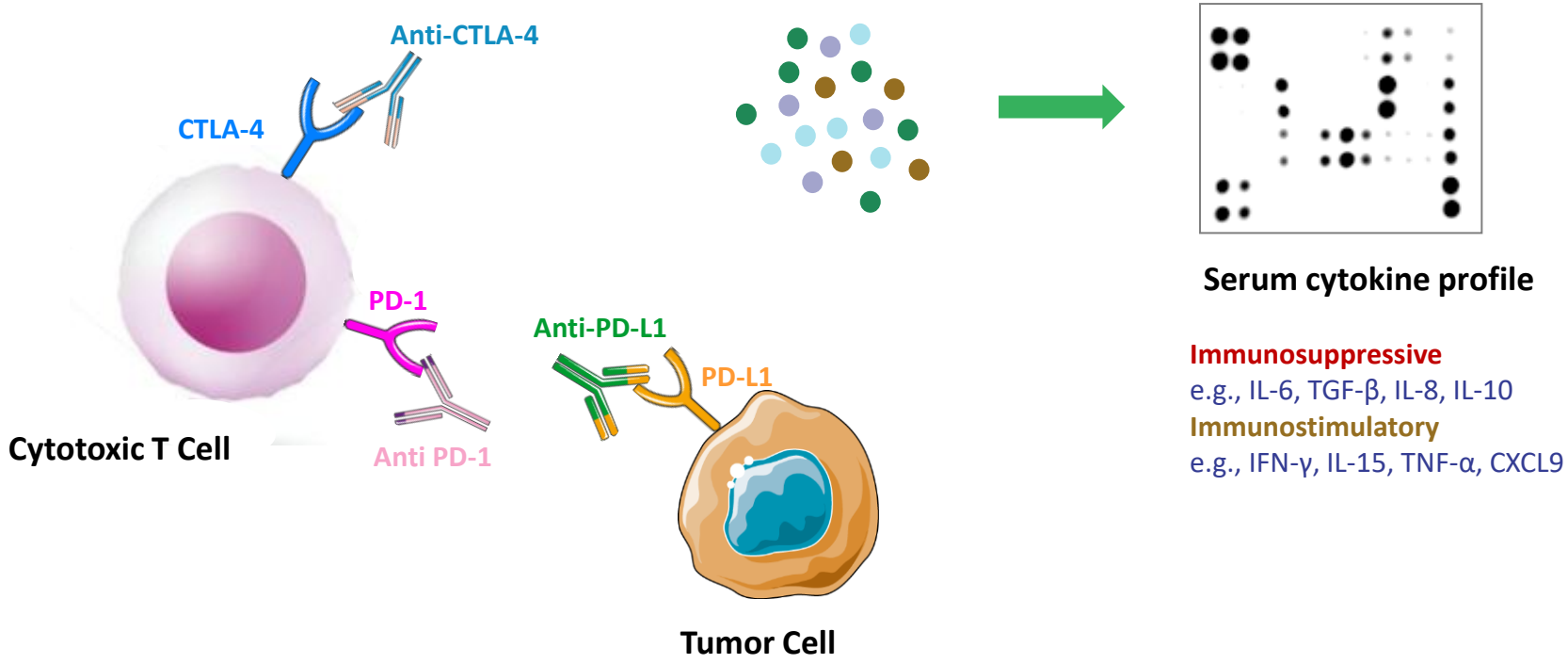
Paths to Advancement

- In Vitro Models
- Animal Models
- Clinical Trials



Predicting Immunotherapy Outcomes

How do we distinguish ICT responders from non-responders?

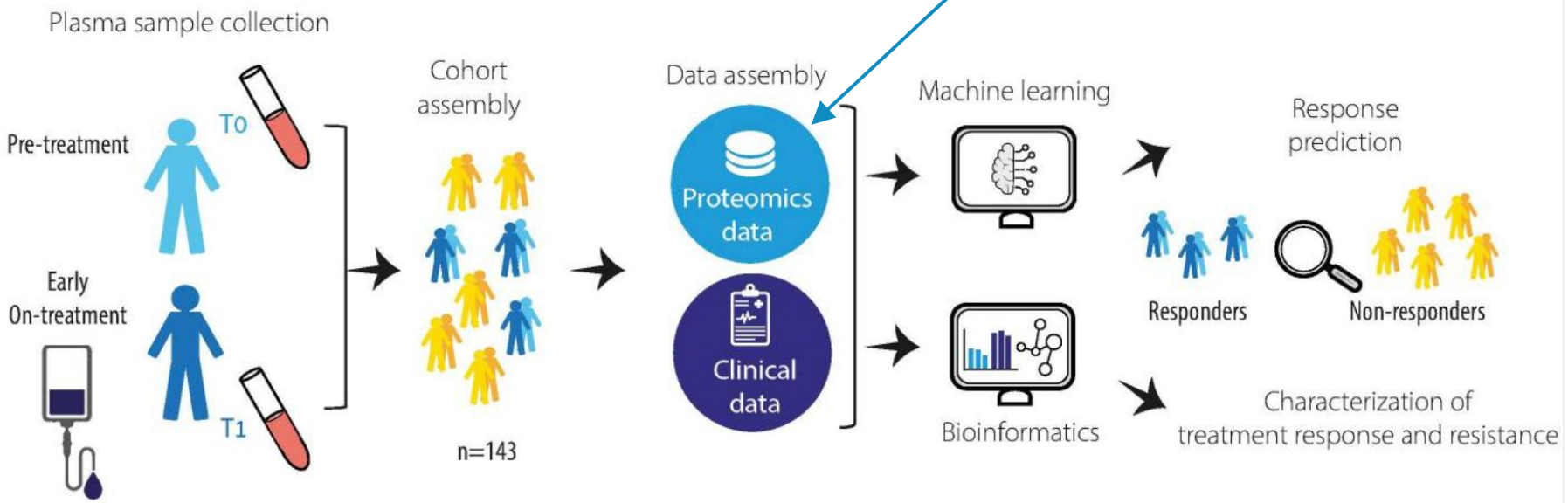


Longitudinal plasma proteomic profiling of patients with non-small cell lung cancer undergoing immune checkpoint blockade

Michal Harel,[1] Coren Lahav,[1] Eyal Jacob,[1] Nili Dahan,[1] Itamar Sela,[1] Yehonatan Elon,[1] Shani Raveh Shoval,[1] Galit Yahalom,[1] Iris Kamer,[2] Alona Zer,[3] Ofer Sharon,[1] David P Carbone,[4] Adam P Dicker,[5] Jair Bar,[2,6] Yuval Shaked [7]

Problem:
ICI therapy achieves only 20-50% response rate in NSCLC patients. Might therapy resistance be predicted prior to treatment?

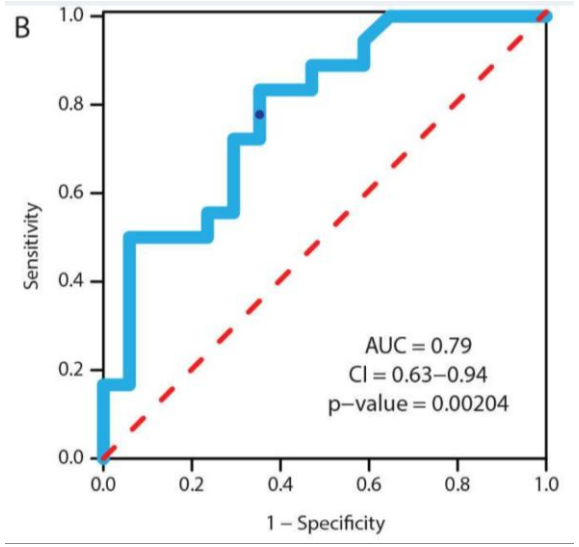
Quantibody® Human Kiloplex Array (1000-plex)



Plasma proteomes were collected longitudinally from 143 NSCLC patients treated with anti-PD-1/PD-L1.

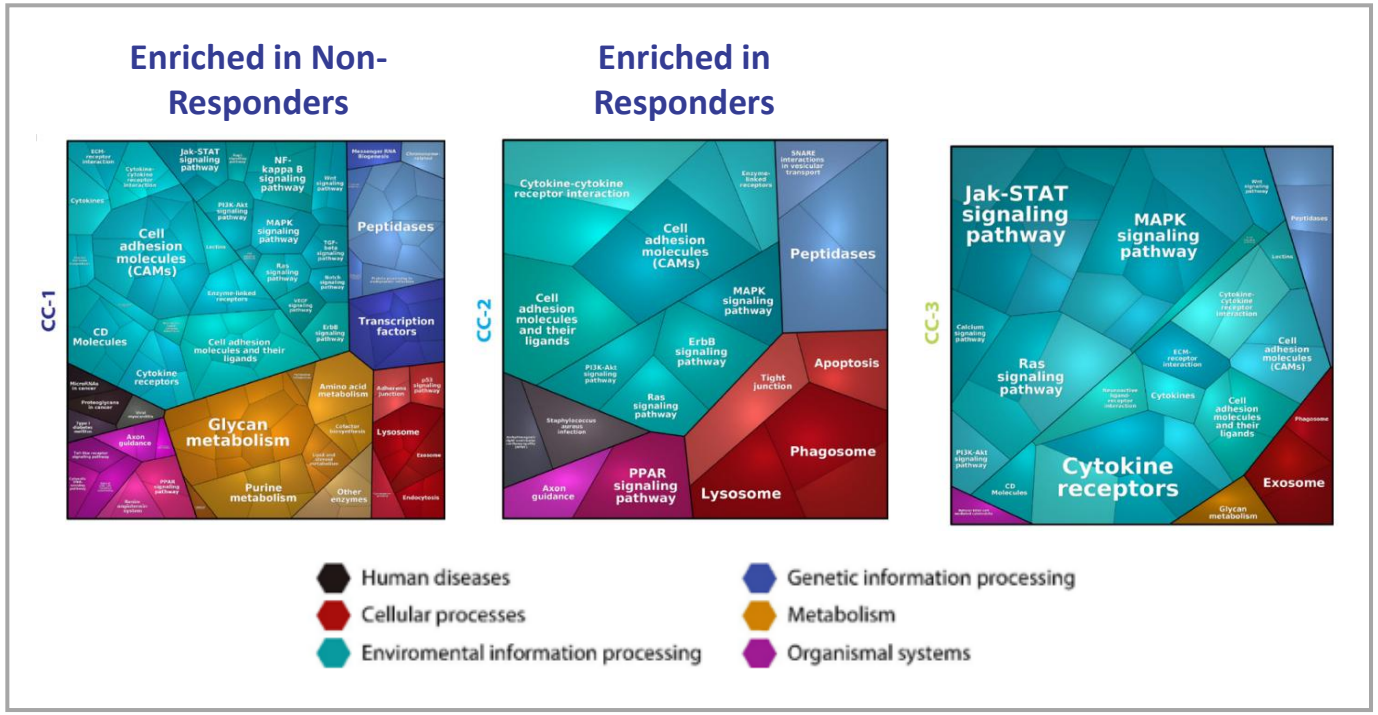
Harel, Michal, et al. *Journal for ImmunoTherapy of Cancer* 10.6 (2022)

CXCL8 and CXCL10, along with sex and age, predicts clinical outcome.



AUC = 0.79

Functional groups of proteins for each patient consensus cluster (CC) at T1



Non-responders:

- ↑ expression of neutrophil proteins (GRO, PLAUR, PILRA) tied to immune evasion pathways (MAPK, NF-κB, JAK-STAT)
- Enriched in cell proliferation and immunosuppression promoting proteins (e.g. pyrimidine metabolism)

Harel M, *et al*. *J Immunother Cancer* 2022;10:e004582

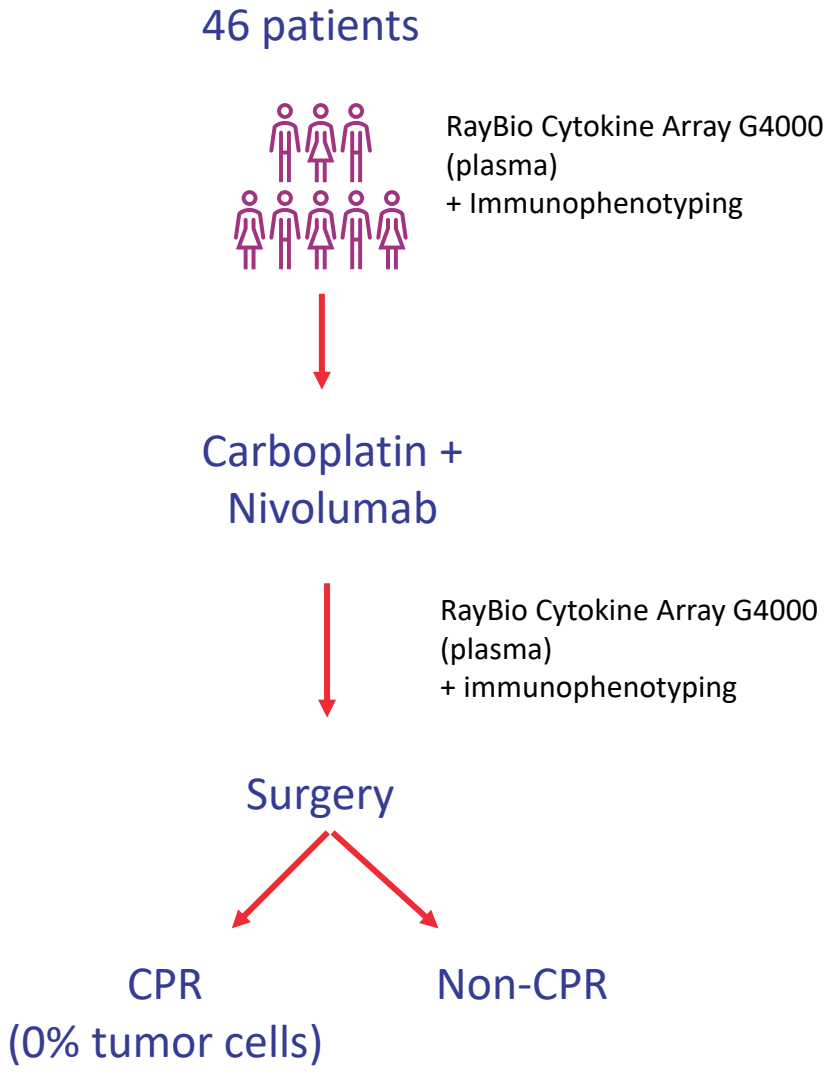
RESEARCH ARTICLE

CLINICAL AND TRANSLATIONAL MEDICINE Open Access WILEY

Blood biomarkers associated to complete pathological response on NSCLC patients treated with neoadjuvant chemoimmunotherapy included in NADIM clinical trial

Problem:

Current biomarkers for monotherapy (TMB; PD-L1 TPS) may be useless for predicting CPR in neoadjuvant therapy (chemo + immunotherapy).

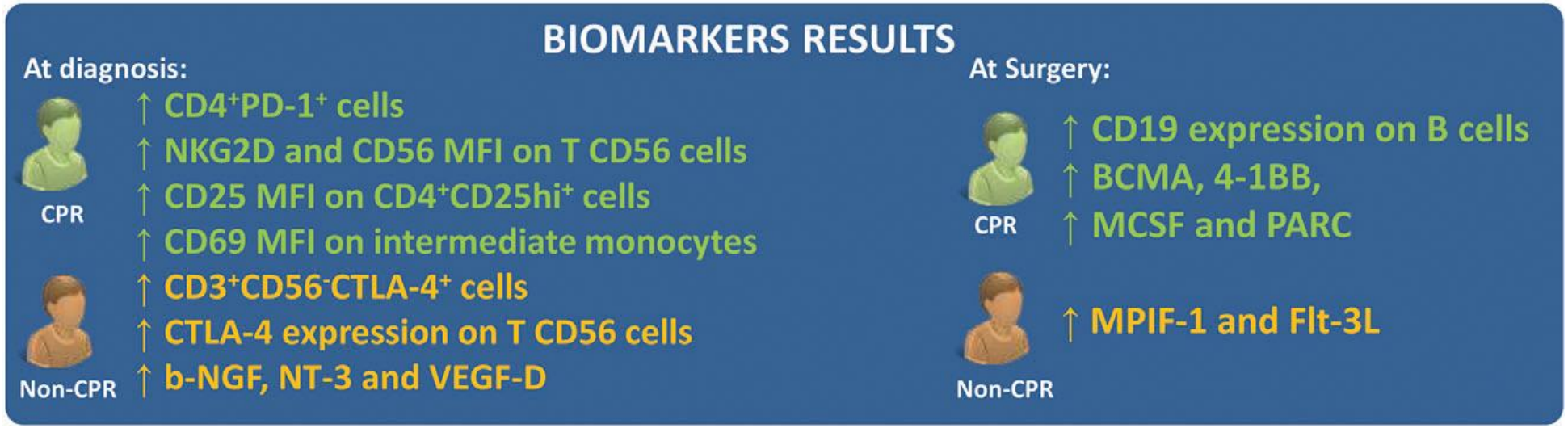


Laza-Briviesca, Raquel, et al. *Clinical and Translational Medicine* 11.7 (2021): e491.

RayBiotech Empowering your proteomics

Complete response predicted by a less immunosuppressive cytokine profile

At baseline, CPR patients had lower levels of neurotrophins and VEGF-D, indicating a less suppressive immune environment.



CPR patients exhibited enhanced anti-tumor responses through immune reprogramming

Laza-Briviesca, Raquel, et al. *Clinical and Translational Medicine* 11.7 (2021): e491.

communications biology

ARTICLE

https://doi.org/10.1038/s42003-022-04403-8 OPEN

TLR5 agonists enhance anti-tumor immunity and overcome resistance to immune checkpoint therapy

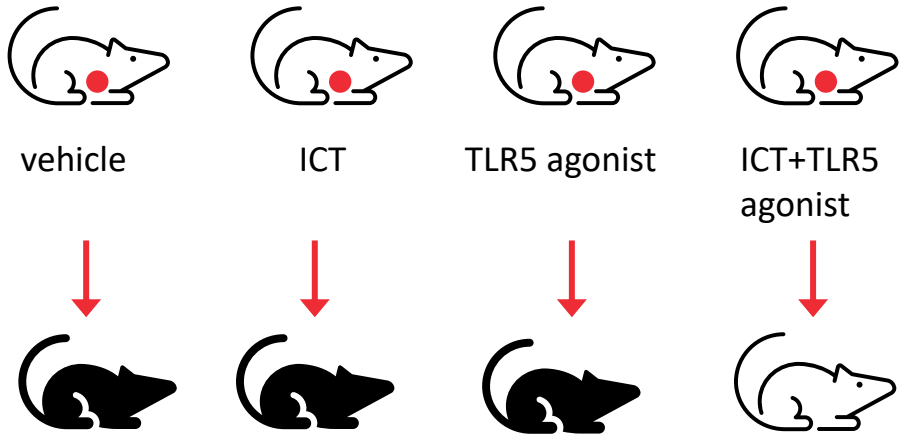
Caleb Gonzalez[1], Sarah Williamson[1], Seth T. Gammon[1], Sarah Glazer[1], Joon Haeng Rhee[2] & David Piwnica-Worms[1✉]

Problem:

ICT resistance in triple-negative breast cancer and melanoma.

Can a TLR5 agonist enhance survival when combined with anti-CTLA-4 or PD-1?

Syngeneic 4T1 mammary carcinoma / B16-F10 melanoma murine models

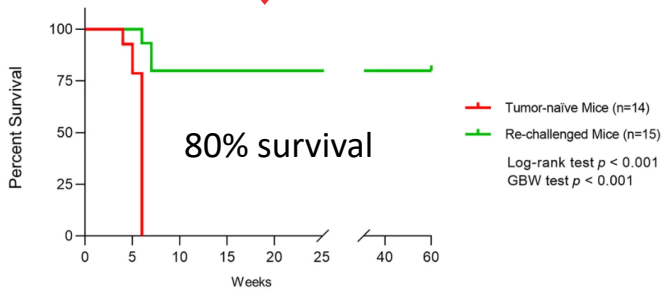


Mouse 32-plex (serum) + tumor infiltrate profiling

20-25% survival

Tumor re-challenge

Mouse 32-plex (serum) + tumor infiltrate profiling



ICT = anti-PD-1 + anti-CTLA-4

TLR5 agonist = flagellin or CBLB502

Gonzalez, Caleb, et al. *Communications Biology* 6.1 (2023): 31.

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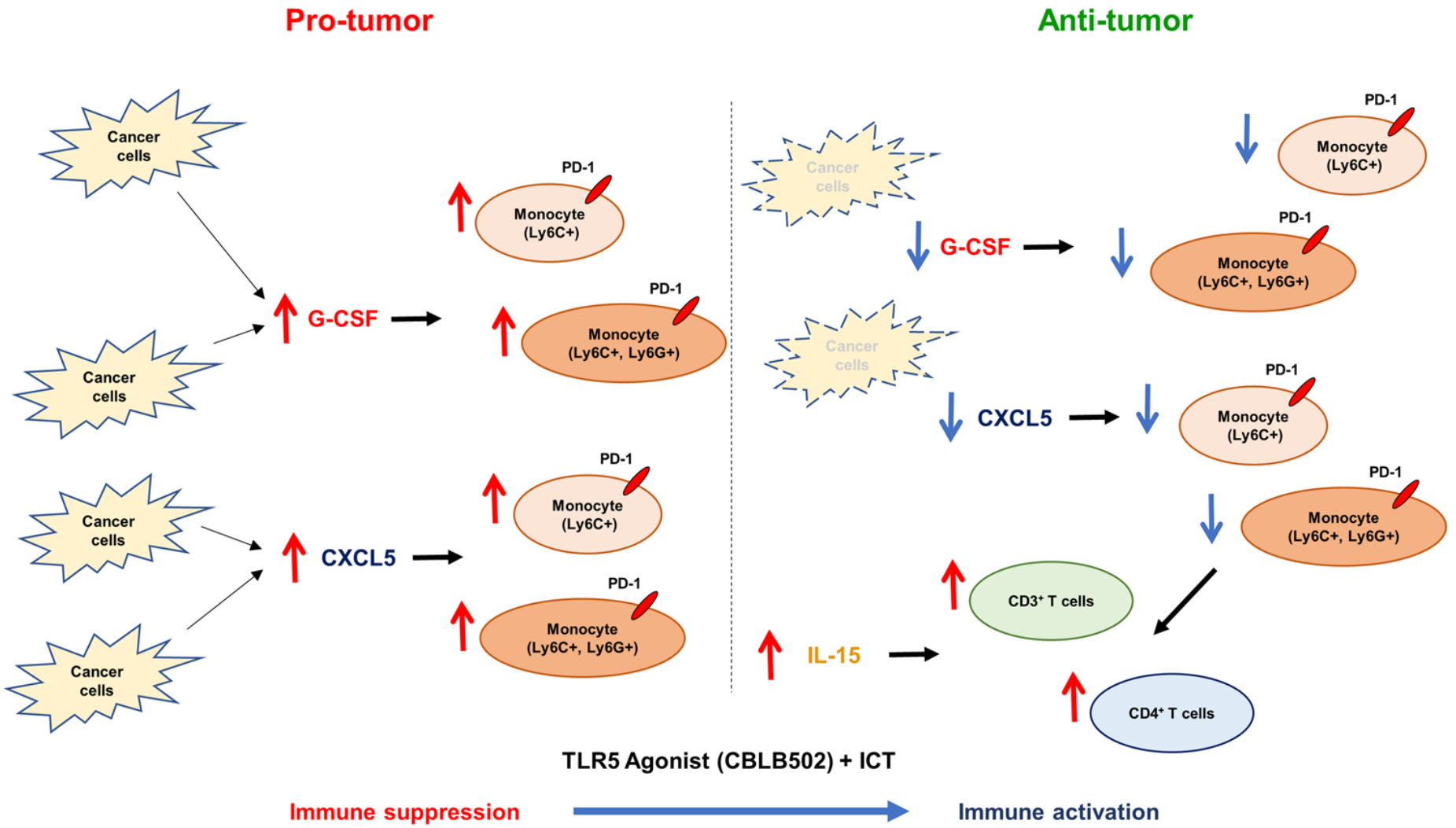


Combined treatment shifts the tumor microenvironment from immune suppression to immune activation.

Gonzalez, Caleb, et al. *Communications Biology* 6.1 (2023): 31.

Biomarker Studies

frontiers | Frontiers in Immunology

Biomarkers in the early stage of PD-1 inhibitor treatment have shown superior predictive capabilities for immune-related thyroid dysfunction

Jinyu Liu[1], Mengli Chen[1], Shu Li[1], Le Cai[1], Liang Ma[1], Qiuliang Yang[2], Xiaoxuan Zhang[1], Nan Bai[1], Xiaodong Wu[3], Zhihui Tang[1] and Tianlin Wang[1]*

Cytokine
Volume 125, January 2020, 154810

Extensive serum cytokine analysis in patients with prostate cancer

Daoyuan Gong [a, 1], Yunuo Wang [b, 1], Yong Wang [a, c, 1], Xin Chen [a], ShenYuan Chen [a], Ruixue Wang [a], Lian Liu [a], Chaohui Duan [d, e] ✉, Shuhong Luo [a] ✉

Cancer Medicine
Open Access

ORIGINAL RESEARCH | Open Access

Serum biomarker panels for the diagnosis of gastric cancer

Dan Wu, Pinglu Zhang, Ji Ma, Jinbo Xu, Li Yang, Weidan Xu, Haifeng Que, Meifen Chen ✉, Hongtao Xu ✉

First published: 14 March 2019 | https://doi.org/10.1002/cam4.2055 | Cited by: 1

Autoantibody Signatures as a Biomarker Panel for the Detection of Nasopharyngeal Carcinoma

Qian-Ping Shi,[a,b,c] Xuan Wang,[a,c] Zhi-Xi Liu,[a,b,c] Jian-Jun Zhang,[b,1,*] and Zhao-Yang Wang[d,1,**]

[a] *Key Laboratory of Molecular Biology in High Cancer Incidence Coastal Chaoshan Area of Guangdong Higher Education Institutes, Shantou University Medical College, Shantou, Guangdong, China, 515041*
[b] *Department of Preventive Medicine, Shantou University Medical College, Shantou, Guangdong, China, 515041*
[c] *Department of Biochemistry and Molecular Biology, Shantou University Medical College, Shantou, Guangdong, China, 515041*
[d] *Department of Radiation Oncology, Shenzhen People's Hospital, Second Clinical Medicine College of Jinan University, Shenzhen, Guangdong, China,*

Clinical Proteomics

REVIEW Open Access

Circulating proteins as predictive and prognostic biomarkers in breast cancer

Hugo Veyssière[1,2,3], Yannick Bidet[1,5†], Frederique Penault-Llorca[1,6], Nina Radosevic-Robin[1,6*†] and Xavier Durando[1,2,3,4†]

Cancer Prevention Research

Research Article

Simultaneous Measurement of 92 Serum Protein Biomarkers for the Development of a Multiprotein Classifier for Ovarian Cancer Detection

Amy P.N. Skubitz, Kristin L.M. Boylan, Kate Geschwind, Qing Cao, Timothy K. Starr, Melissa A. Geller, Joseph Celestino, Robert C. Bast Jr., Karen H. Lu, and Joseph S. Koopmeiners

DOI: 10.1158/1940-6207.CAPR-18-0221 Published March 2019

RayBiotech
Empowering your proteomics

Mechanisms of Disease or Drug Action

LETTER

doi:10.1038/nature11183

Tumour micro-environment elicits innate resistance to RAF inhibitors through HGF secretion

Ravid Straussman[1], Teppei Morikawa[2], Kevin Shee[1], Michal Barzily-Rokni[1], Zhi Rong Qian[2], Jinyan Du[1], Ashli Davis[1], Margaret M. Mongare[1], Joshua Gould[1], Dennie T. Frederick[3], Zachary A. Cooper[3], Paul B. Chapman[4], David B. Solit[4,5], Antoni Ribas[6,7], Roger S. Lo[7,8], Keith T. Flaherty[3], Shuji Ogino[2,9], Jennifer A. Wargo[3] & Todd R. Golub[1,10,11,12]

Microenvironment and Immunology

Cancer Research

Gr-1+CD11b+ Myeloid Cells Tip the Balance of Immune Protection to Tumor Promotion in the Premetastatic Lung

Hannah H. Yan[1], Michael Pickup[2,4], Yanli Pang[1], Agnieszka E. Gorska[2,4], Zhaoyang Li[1], Anna Chytil[2,4], Yipeng Geng[2,3], Jerome W. Gray[3], Harold L. Moses[2,4], and Li Yang[1]

Metformin and simvastatin exert additive antitumour effects in glioblastoma via senescence-state: clinical and translational evidence

Antonio C. Fuentes-Fayos,[a,b,c,d,*] Miguel E. G-García,[a,b,c,d] Jesús M. Pérez-Gómez,[a,b,c,d] Antonio J. Montero-Hidalgo,[a,b,c,d] Julia Martín-Colom,[a,b,e] Carlos Doval-Rosa,[a,b,e] Cristóbal Blanco-Acevedo,[a,b,e] Encarnación Torres,[a,b,c,d] Álvaro Toledano-Delgado,[a,b,e] Rafael Sánchez-Sánchez,[a,b,f] Esther Peralbo-Santaella,[a,g] Rosa M. Ortega-Salas,[a,b,f] Juan M. Jiménez-Vacas,[a,b,c,d] Manuel Tena-Sempere,[a,b,c,d] Miguel López,[d,h] Justo P. Castaño,[a,b,c,d] Manuel D. Gahete,[a,b,c,d] Juan Solivera,[a,b,e] and Raúl M. Luque[a,b,c,d,**]

Cell

Tumor Self-Seeding by Circulating Cancer Cells

Mi-Young Kim,[1] Thordur Oskarsson,[1] Swarnali Acharyya,[1] Don X. Nguyen,[1] Xiang H.-F. Zhang,[1] Larry Norton,[2] and Joan Massagué[1,3,*]
[1]Cancer Biology and Genetics Program
[2]Department of Medicine
[3]Howard Hughes Medical Institute
Memorial Sloan-Kettering Cancer Center, New York, NY 10021, USA
*Correspondence: massaguj@mskcc.org
DOI 10.1016/j.cell.2009.11.025

Article

Cancer Cell

Tissue factor is a critical regulator of radiation therapy-induced glioblastoma remodeling

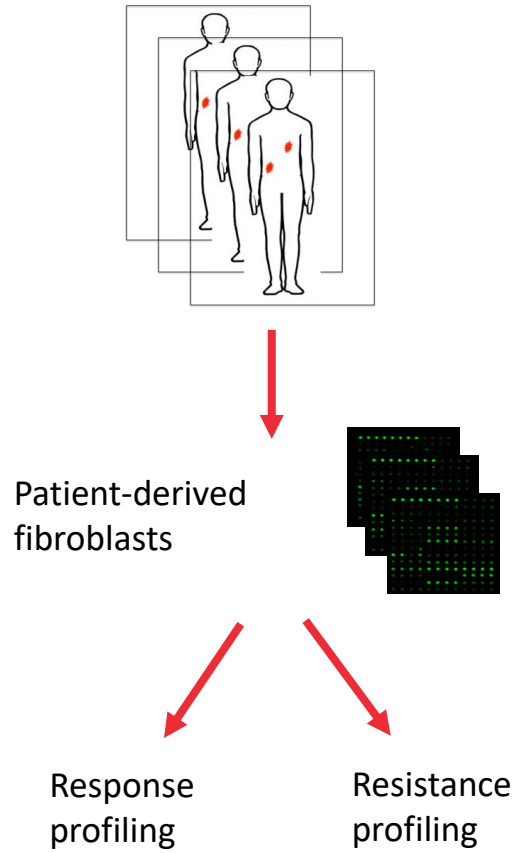
KISS1 tumor suppressor restricts angiogenesis of breast cancer brain metastases and sensitizes them to oncolytic virotherapy in vitro

Mikhail E. Platonov, Anton V. Borovjagin, Natalya Kaverina, Ting Xiao, Zaira Kadagidze, Maciej Lesniak, Marya Baryshnikova, Ilya V. Ulasov

Cancer Cell

Article

Three subtypes of lung cancer fibroblasts define distinct therapeutic paradigms

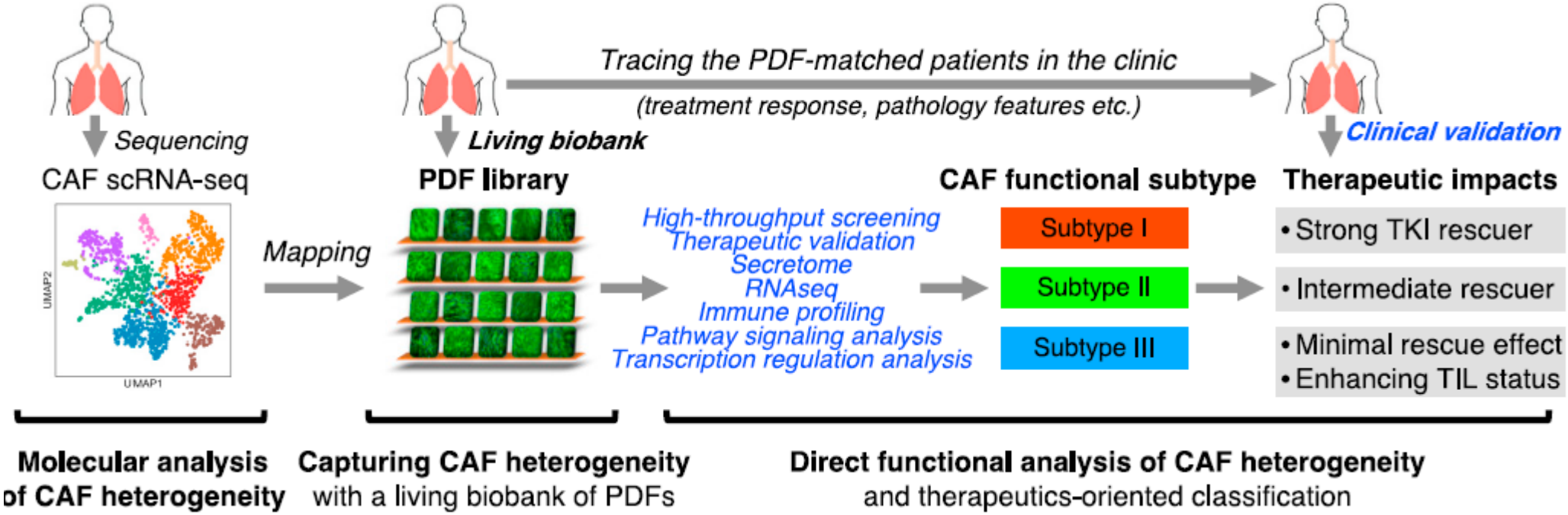


Can CAF phenotypes reveal distinct clinical patient responses to targeted therapies?

Subtype I: HGF and FGF7 are upregulated
Subtype II: Only FGF7 is upregulated
Subtype III: Neither is upregulated

Hu, Haichuan, *et al*. *Cancer cell* 39.11 (2021): 1531-1547.

CAF secretomes: mapping patients' clinical response to targeted therapy



Hu, Haichuan, *et al*. *Cancer cell* 39.11 (2021): 1531-1547.

For large arrays, we recommend service

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thank you for your attention

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