

Next Generation Prostate Cancer Screening and Treatment

Vision for the Future

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Disclosures

- Oncobiomix- Founder
- Outpost Bio - Advisor
- Cortex.ai – NIH funding collaborator

Next Generation Prostate cancer screening

Early Detection of Prostate CA

Use of PSA

PSA > 4.0

Warning! Risk of Prostate Cancer!
Do Biopsy!

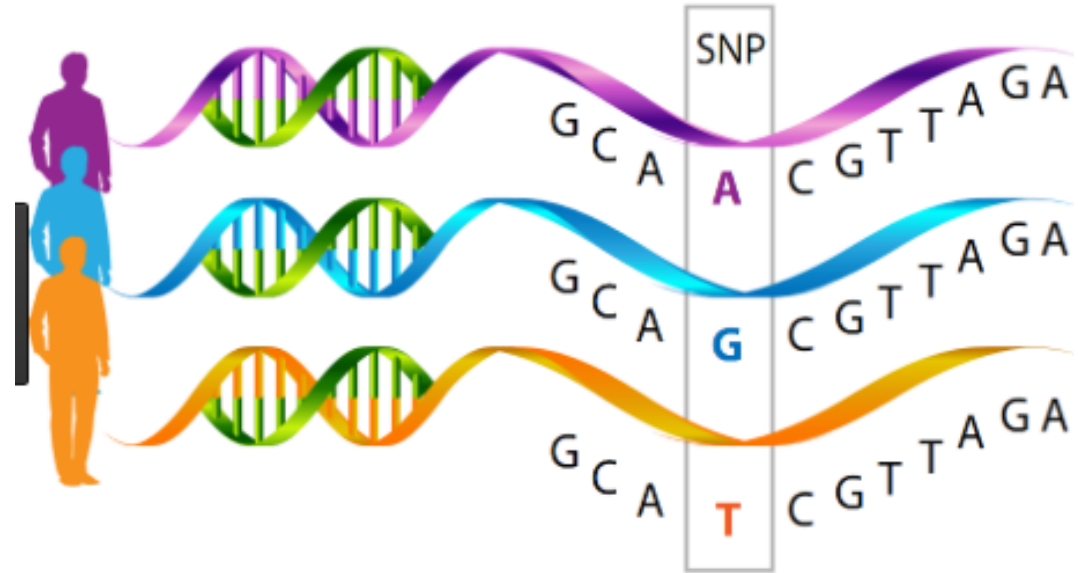
PSA $\leq$ 4.0

No worries!
No Risk of Prostate Cancer!

Genetics

Germline vs. SNP Profiling

- BRCA1.
- BRCA2.
- ATM.
- CHEK2.
- NBN.



Polygenic hazard score to guide screening for aggressive prostate cancer: development and validation in large scale cohorts

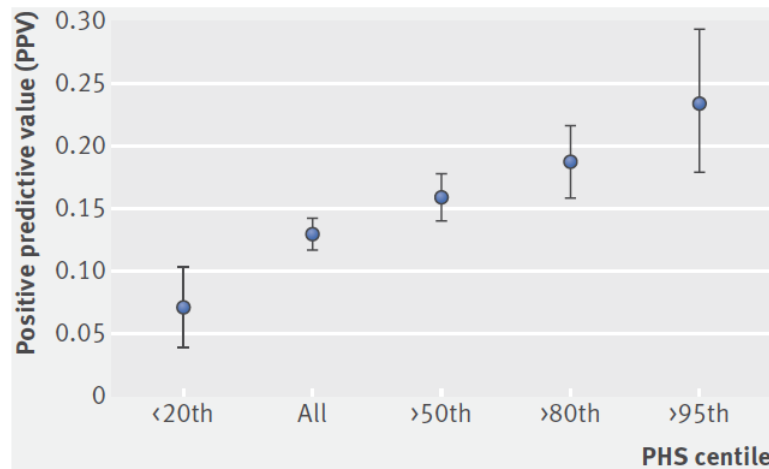


Fig 2 | Positive predictive value of PSA testing for aggressive PCa in validation set. Centiles refer to distribution of polygenic hazard score among young controls in development set. 95% confidence intervals are from random samples of cases in validation set (see methods)

Microbiome

IBD as a risk factor for prostate cancer: what is the link?

Karen S. Sfanos and Corinne E. Joshi

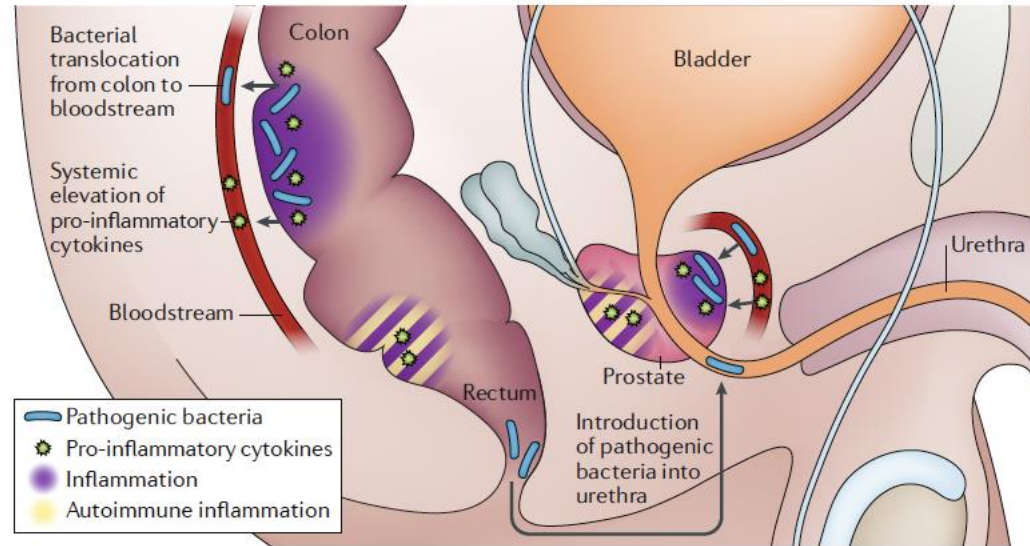
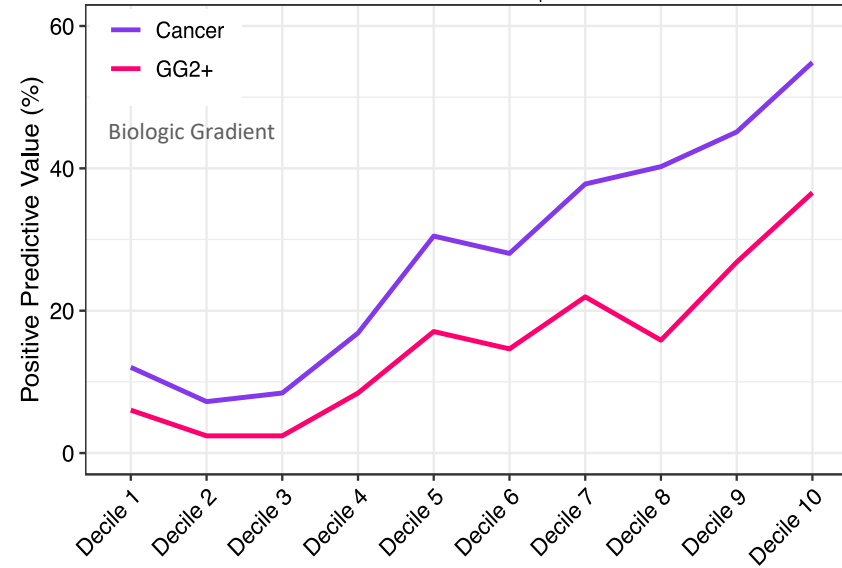


Fig. 1 | Potential mechanisms underpinning a causal association between IBD and prostate cancer. Autoimmune inflammation from inflammatory bowel disease (IBD), specifically Crohn's Disease, might manifest in the prostate. Pro-inflammatory, pathogenic microorganisms that contribute to IBD might also infect the prostate via introduction through the urinary tract or via bacterial translocation from the gastrointestinal tract to the circulatory system. Finally, chronic IBD can cause elevated systemic levels of pro-inflammatory cytokines that might promote prostate tumorigenesis.

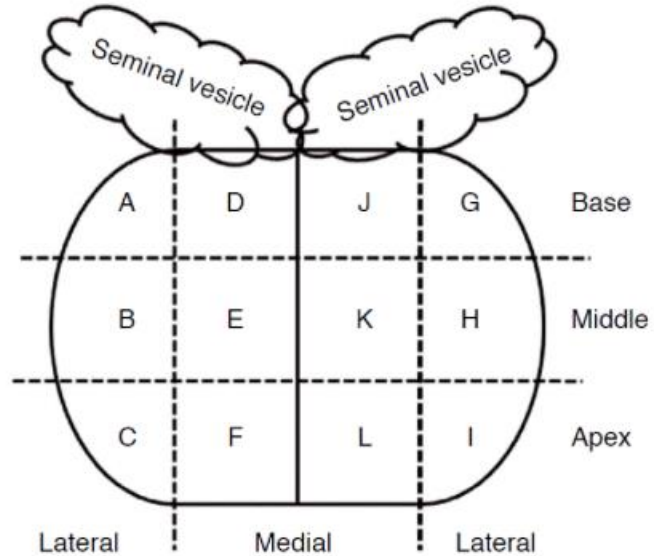
Microbiome Risk Score



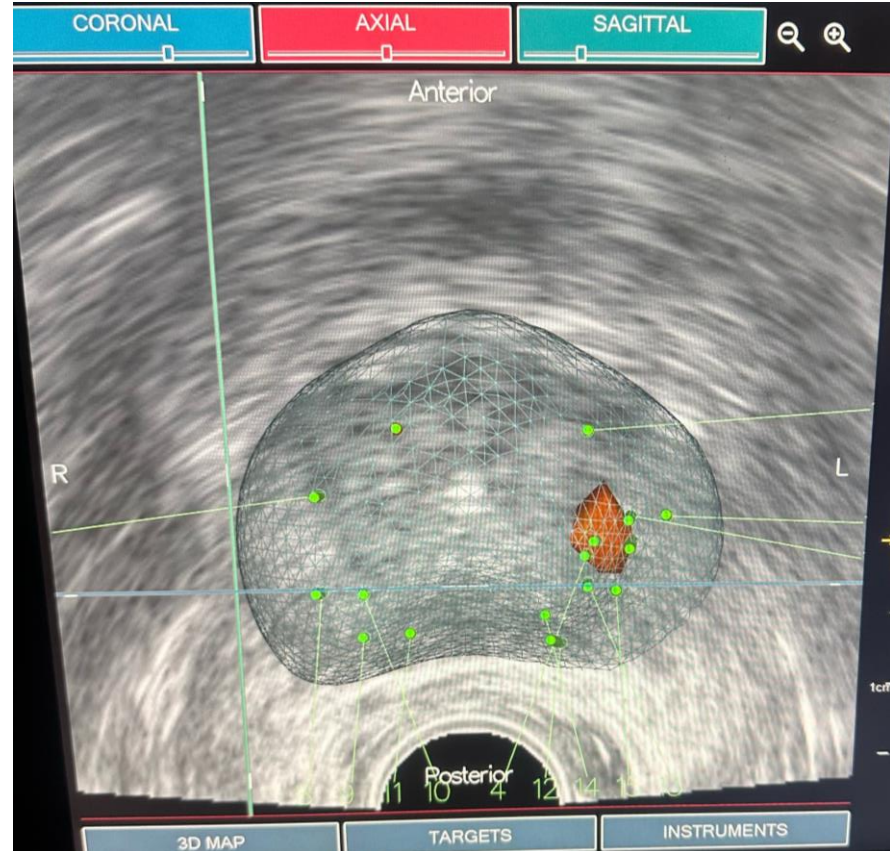
	Decile Values									
	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Max
Microbiome Score	0.11	0.16	0.2	0.24	0.28	0.33	0.37	0.42	0.49	0.7
% cancer	12%	7%	8%	17%	30%	28%	38%	40%	45%	55%
% GG2	6%	2%	2%	8%	17%	15%	22%	16%	27%	37%
No Cancer	73	77	76	69	57	59	51	49	45	37
Cancer	10	6	7	14	25	23	31	33	37	45
Non GG2+	78	81	81	76	68	70	64	69	60	52
GG2+	5	2	2	7	14	12	18	13	22	30

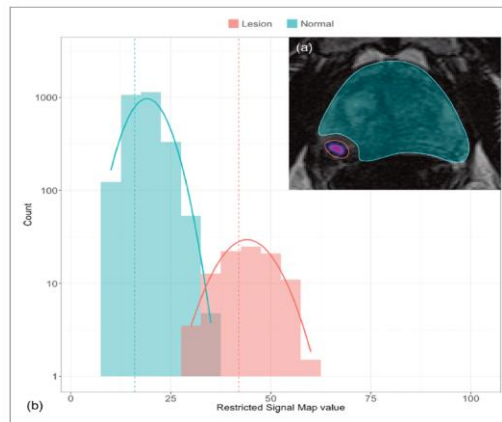
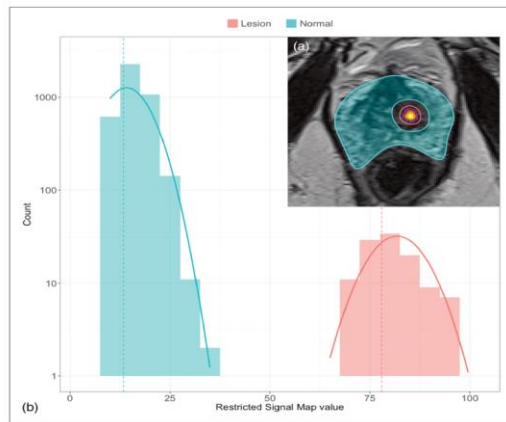
Image Guided Biopsy

Previous Biopsy

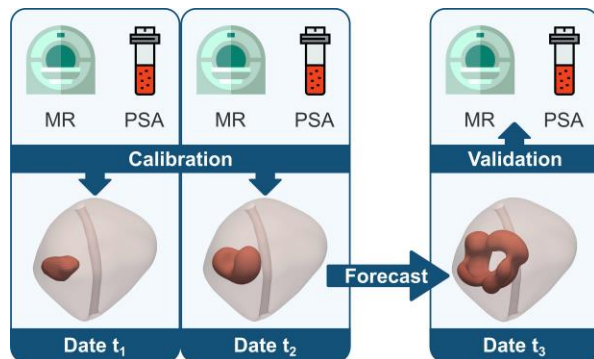


MRI-Ultrasound Fusion Targeted Biopsy

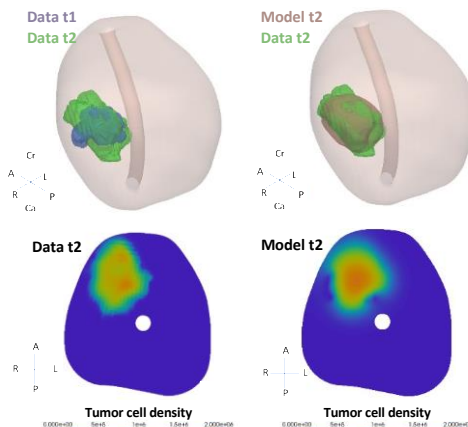




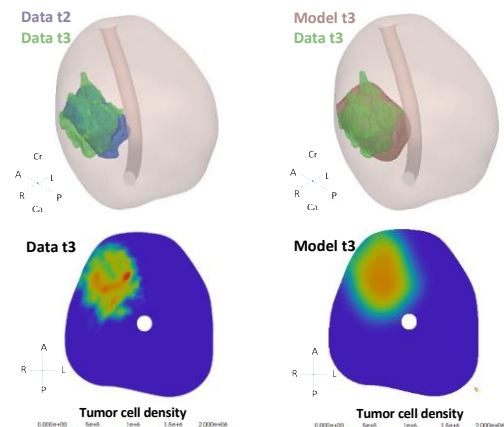
A | Concept



B | Model calibration



C | Model Forecast

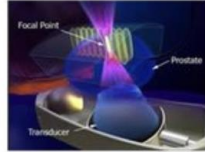


Next Generation Cancer Surgery

Personalized Therapy

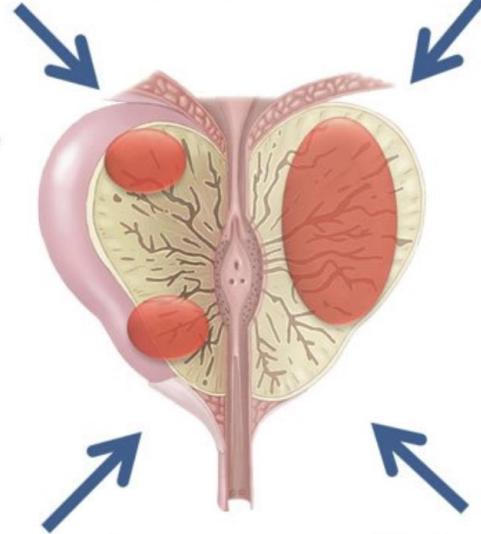
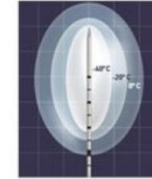
Focal Therapy High Intensity Focused Ultrasound (HIFU)

Localised tumour
Posterior
Can be bilateral
Intermediate Risk Disease
Low Side-effects



Focal Therapy Cryotherapy

Localised tumour
Anterior
Can be bilateral
Intermediate Risk Disease
Low Side-effects



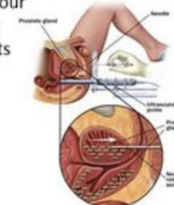
Whole Gland Treatment Robotic Prostatectomy

High volume tumour
High Risk Disease
Higher Side-effects

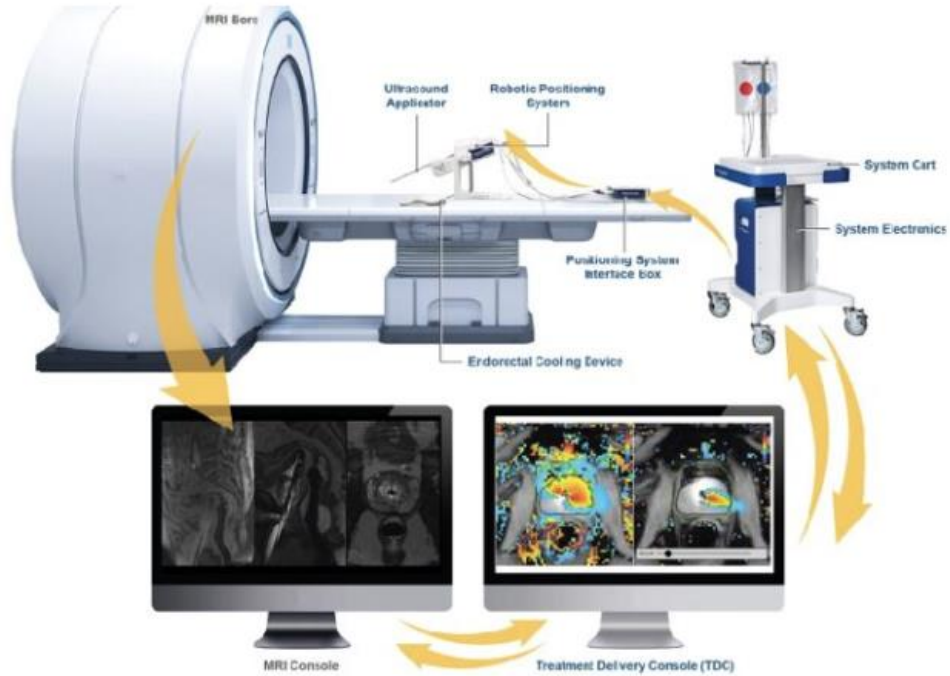


Whole Gland Treatment Radiotherapy Brachytherapy

High volume tumour
High Risk Disease
Higher Side-effects



HIFU



TULSA-PRO system



Robotic Surgery



Surgeon Console



Vision Cart



Da Vinci XI



Da Vinci SP



Thank you