



CAIRIBU BPH RESEARCH INTEREST GROUP (BPH RIG)

CAIRIBU BPH KNOWLEDGE EXCHANGE



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**JULY 8, 2026
7PM-8PM ET**



EXECUTIVE SUMMARY 7/8/2026

Goal: Facilitate knowledge exchange and spur collaborations in BPH research and adjacent fields

Dr. Simon Hayward's Presentation: The History of BPH Research

BPH Issues and What Is Needed

- Dr. Hayward stated that one of the biggest issues with BPH treatment is the growing aging population and decreasing urologist population.
- **There have been relatively ineffective medical approaches with minimal changes in the last three decades**, he said, emphasizing the need for new and effective medical approaches to slow the influx of BPH patients.

Past Discoveries and Ideas of the Prostate

- Dr. Hayward introduced T/E₂ ratio and the discovery of 5-alpha-reductase made by Dr. Jean Wilson which later becomes a therapeutic target for medicinal approaches.
- In 1980s, he described how Dr. John McNeal introduced embryonic reawakening; the "reawakening" of fetal inductive potential of adult mesenchymal cells of the prostate giving rise to new growth and duct architecture.

More Recent Discoveries and Ideas of Prostate

- Dr. Hayward discussed the association of inflammation and BPH and noted that inflammatory comorbidities (metabolic syndrome, type 2 diabetes, obesity) are common foci in BPH research and often are linked to treatment resistance.

History of Medical Approaches

- Dr. Hayward described how BPH surgery has been occurring for centuries starting as castration in the 19th century, transitioning to simple prostatectomy in the late 19th and mid-20th centuries, and transurethral resection of the prostate throughout the 20th century.
- Alpha-adrenergic inhibitors have a long history for BPH treatment, he said, including non-selective, short-acting selective, long-acting selective, and uro-selective alpha blockers. These target specific alpha receptors in the prostate to improve urine flow.
- To shrink the prostate effectively, 5-alpha reductase inhibitors (5ARIs), such as finasteride, are often used in clinical management.

New and Upcoming Ideas

- **Dr. Hayward stressed the need to recognize subclasses of BPH disease**, such as size and stiffness of prostates and stated that new clinical techniques may be necessary to determine if these subclasses matter for symptomology.

- Using imaging modalities to visualize size, inflammation, and fibrosis of the prostate could create individualized treatment plans, he said.

Modeling BPH

- Dr. Hayward reviewed new mouse models that have been developed over the last few decades. He noted, however, that mouse models are not as well correlated with human disease states.
- Development of 3D in-vitro approaches, mostly organoid based, may prove to be informative.

Cellular Characterization

- Single-cell RNA sequencing and spatial transcriptomics have provided major improvements in characterizing the cellular components of the prostate.
- Dr. Hayward suggested that **research on cellular characterization be expanded to include representation of all major BPH related disease profiles** in order to improving understanding of the cell types in relation to a patient's morbidity.

Human Tissue Problems

- Dr. Hayward noted that changes to surgical procedures have unfortunately tended toward tissue destruction, potentially having major implications for future studies.
- He said that **the advance of these destructive approaches underscores the importance of existing biobanks of human prostate tissue** and encourages clinicians to collect as much human tissue samples as possible.
- Dr. Hayward also advocated for more models to study BPH disease due to destructive surgical interventions, highlighting the need for more reliable vivo, ex vivo, in vitro, and silico models.

Summary

- Dr. Hayward reviewed that BPH is a potentially fatal and increasingly common disease without a distinctive cause.
- Throughout history, T/E₂, embryonic reawakening, and inflammation have all been studied as a cause for BPH.
- He cited major medical improvements but noted that the last few decades have been rather stagnant with respect to new treatment methods.
- Dr. Hayward stressed the need for improvements in categorizing subclasses, cellular characterization, and the creation of new, more reliable models as necessary for advancing BPH research.

Simon Hayward, PhD, is a Principal Investigator at the P20 FORWARD Center at Endeavor Health in Chicago, IL. He studies the effects of systemic inflammatory conditions in the promotion and therapy resistance of benign prostatic hyperplasia. His project at Endeavor Health is titled "Validating Mouse Models of Prostatic Hyperplasia," and aims to address the need to generate a relevant mouse model for BPH.