

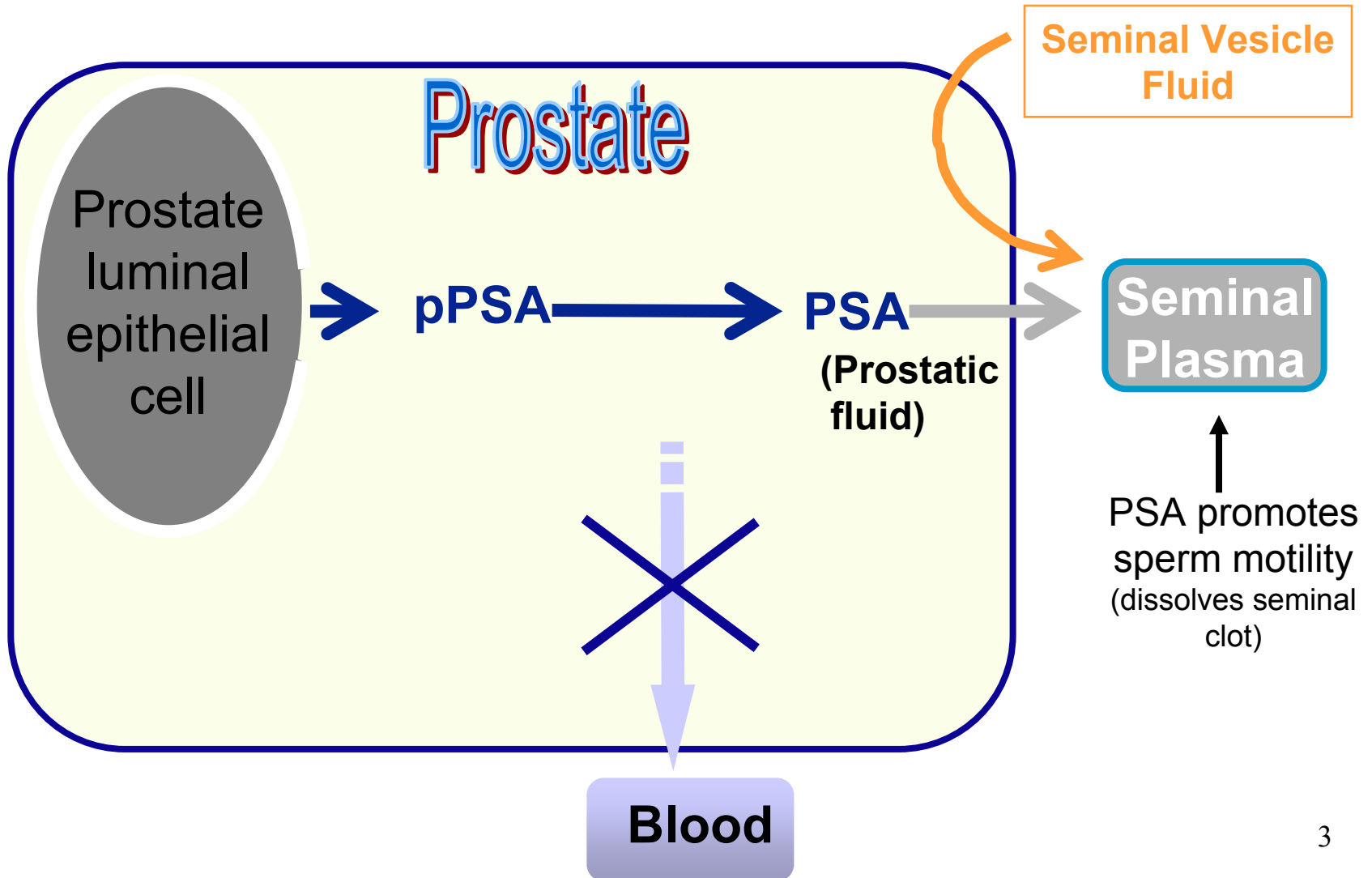
Discerning Deadly from Distracting Prostate Disease

Bernard Cook, Ph.D., DABCC, FACB
Beckman Coulter, Inc.

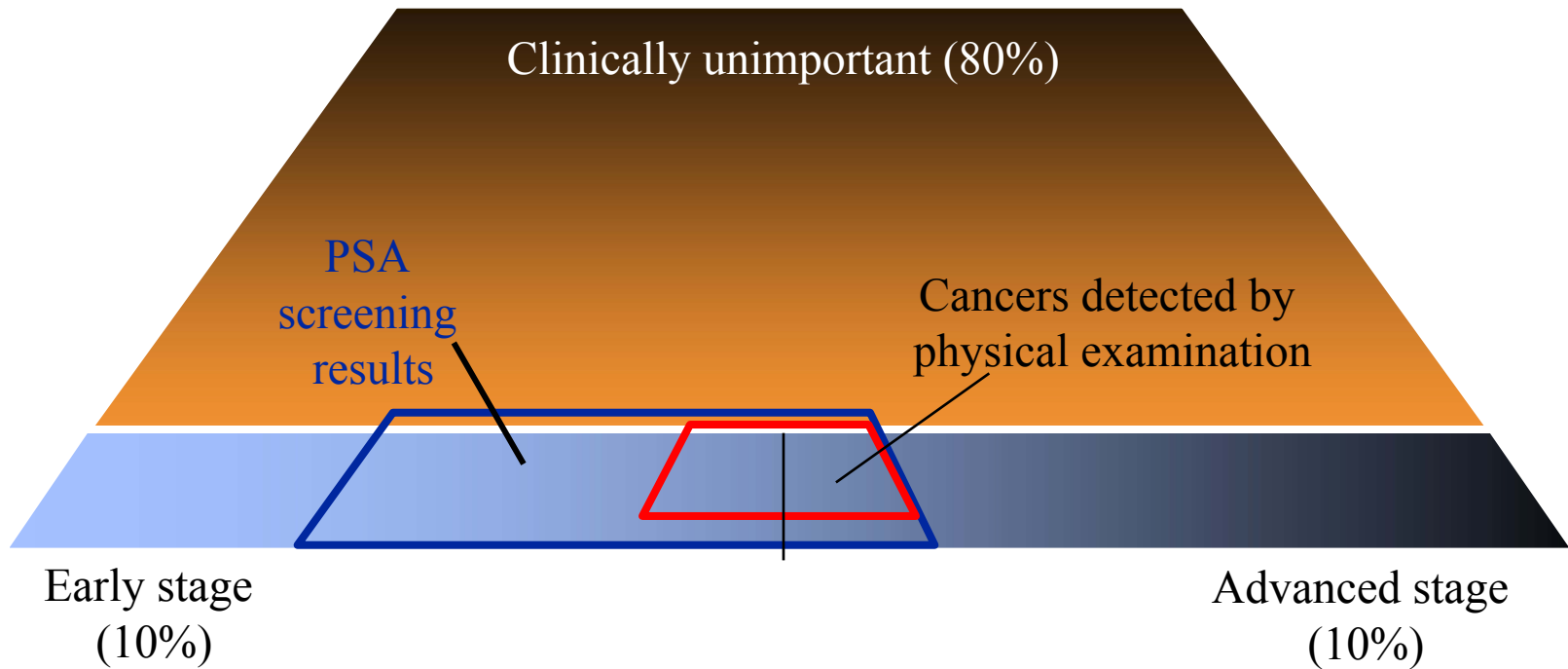
Prostate Disease: A Major Health Problem

- **Prostatic Carcinoma (PCa)**
 - Most common male malignancy
 - 2nd most common cause of cancer mortality
- **Benign Prostatic Hyperplasia (BPH)**
 - A quality of life disease
 - Present in 4 % at 40 y, 75 % at 80 y
- **Others**

Normal Physiological Pathway

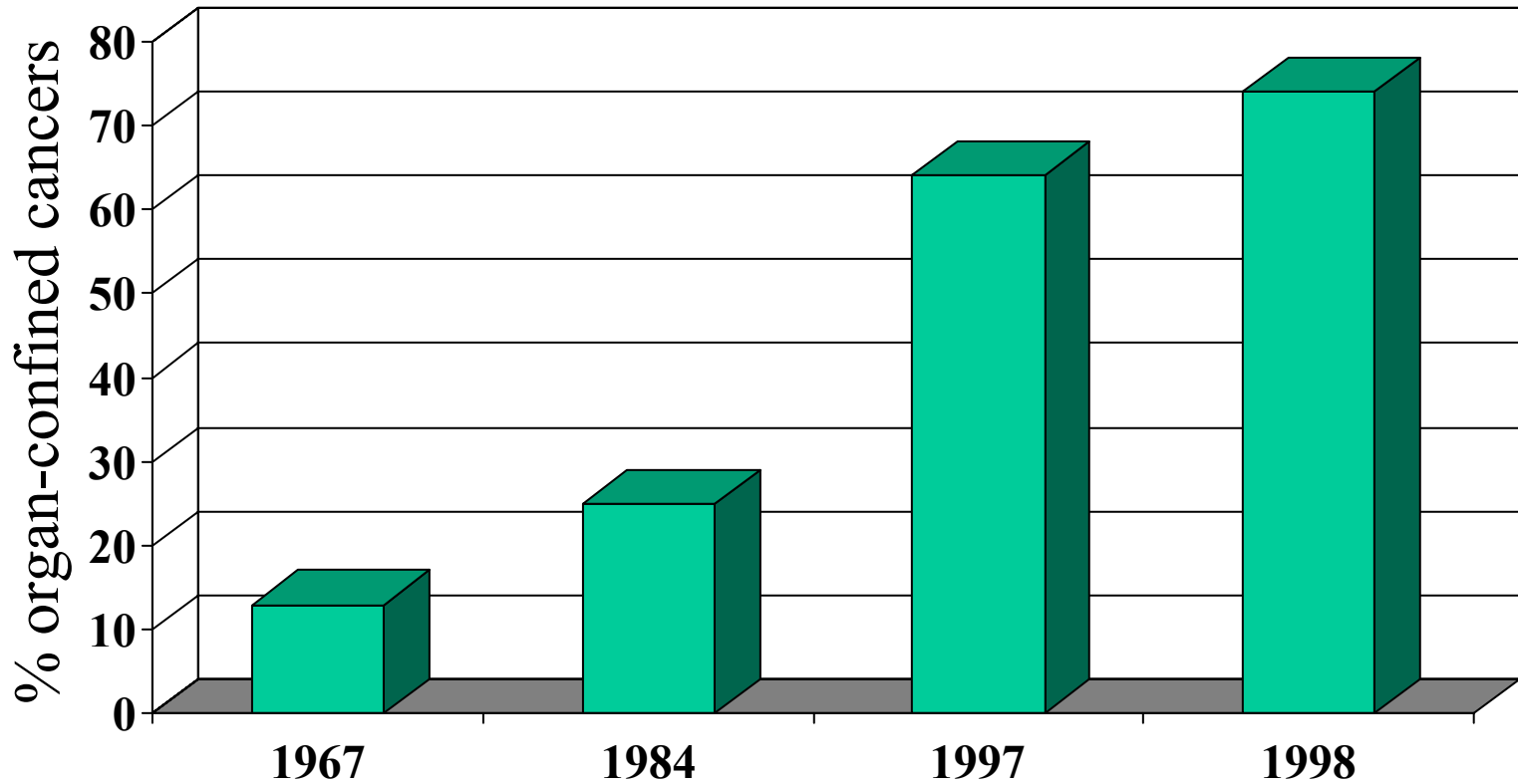


PSA Improves detection of early cancers



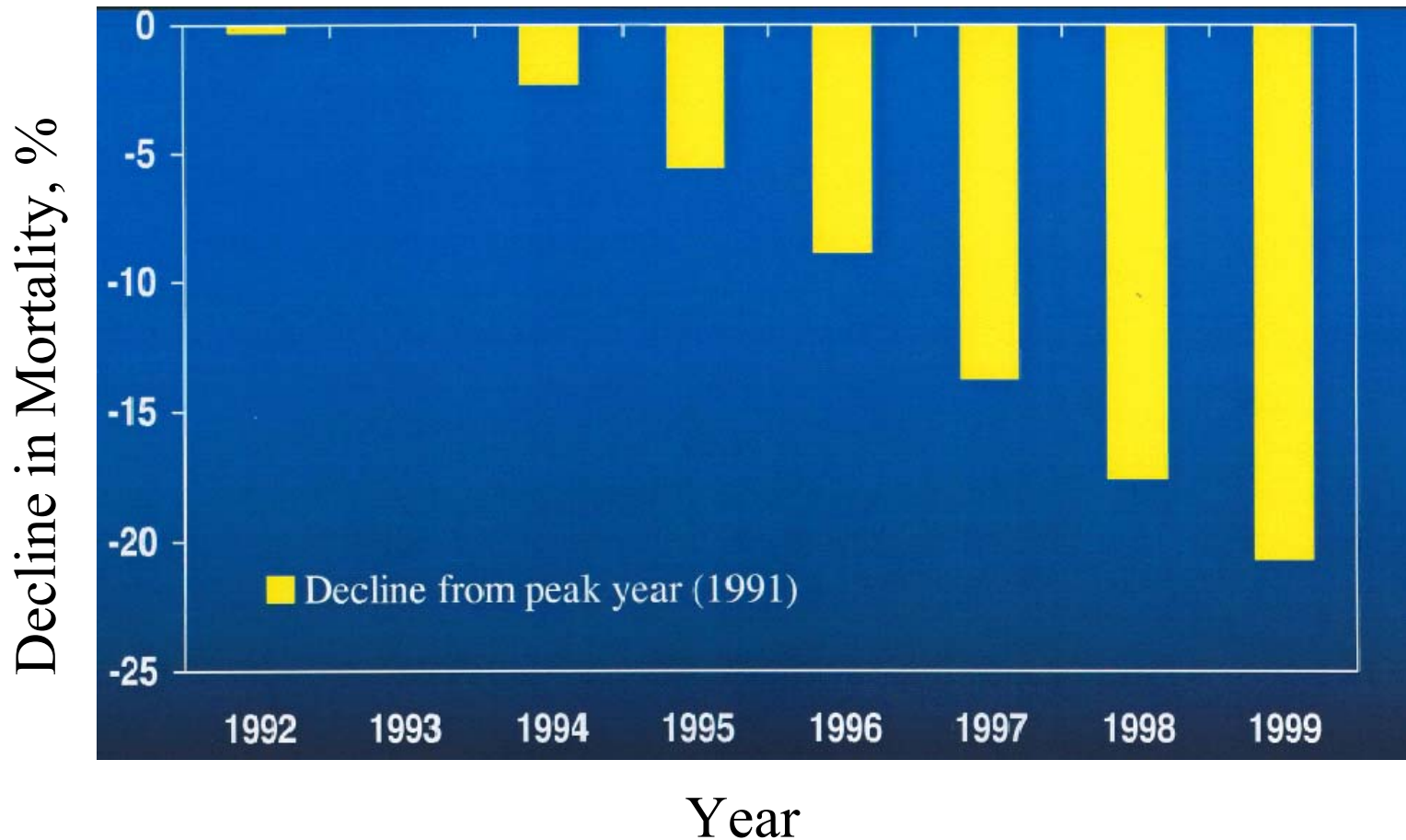
Jennifer C. Christiansen
Scientific American

Organ-Confined Cancer



(Babaian)

Fall in PCa Mortality



(Stephenson R. SEER Program Data, 2002, NCI)

Getting More Out of PSA

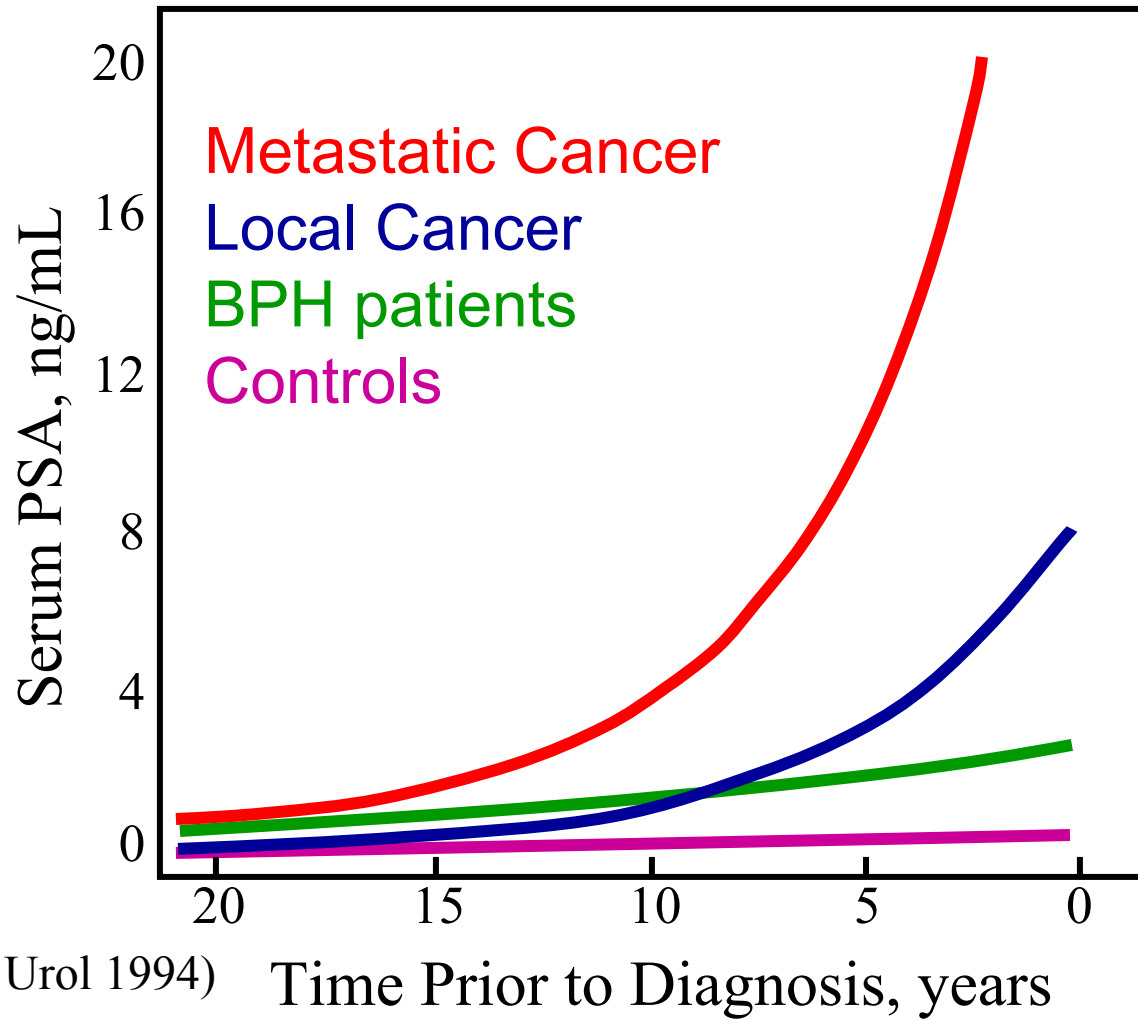
ACCEPTED

- **Free PSA**
 - Catalonia WJ (1998) JAMA
-

UNDER
INVESTIGATION

- **PSA velocity**
 - Smith DS (1994) J Urol
 - McLaren DB (1998) Cancer
- **PSA density**
 - Zlotta (1997) J Urol
 - Beduschi (1997) Urol Clin North Am
- **Age-specific reference ranges**
 - Anderson JR (1995) Urol

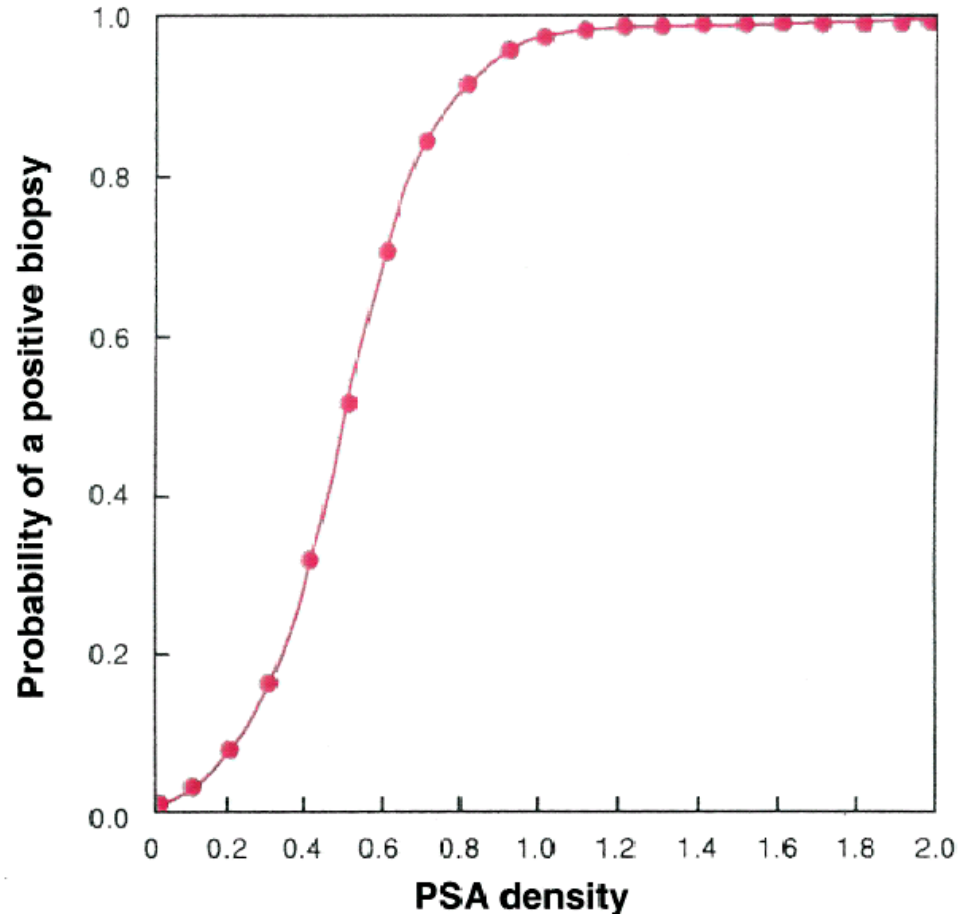
PSA Velocity



(Partin A. J Urol 1994)

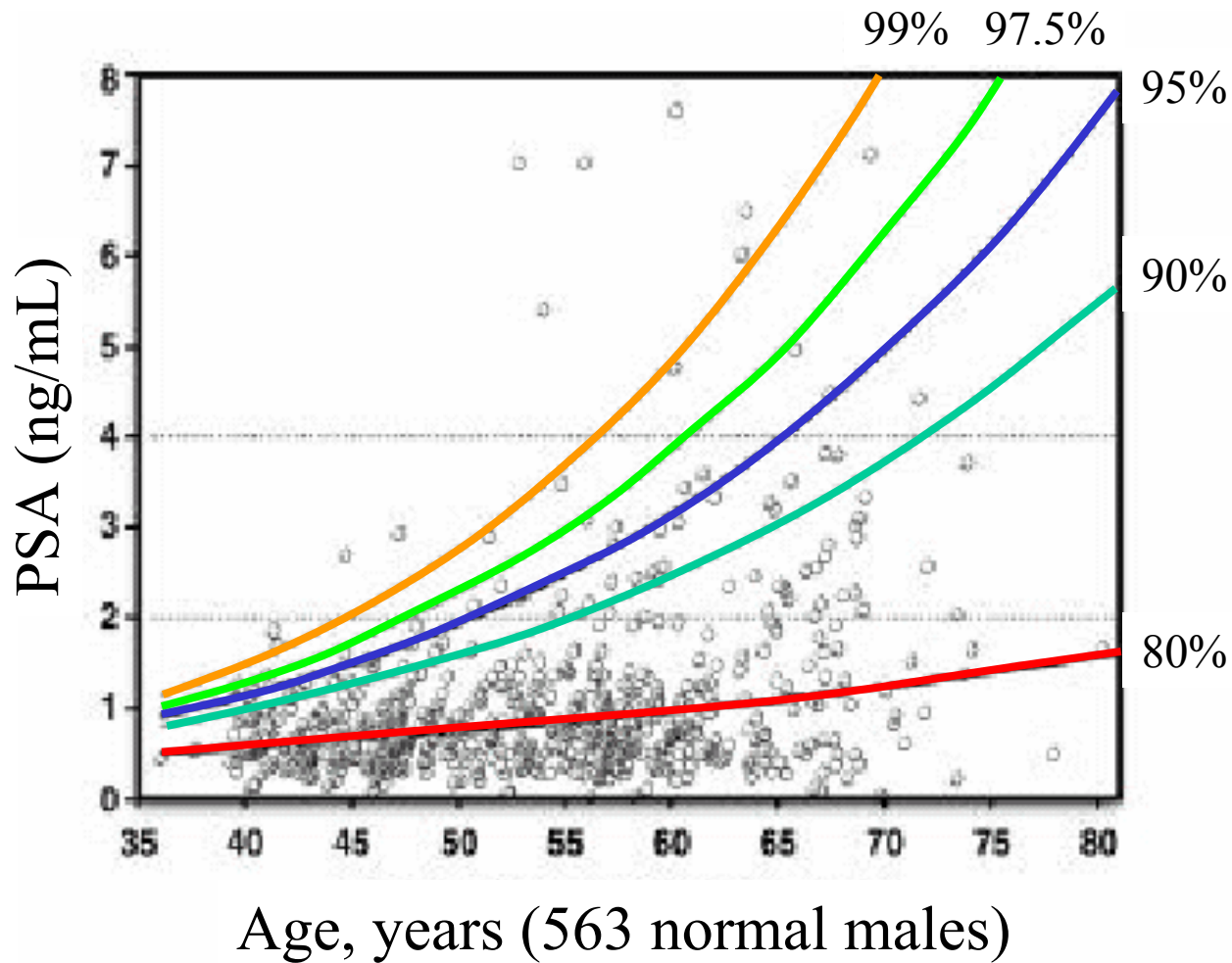
Time Prior to Diagnosis, years

PSA density predicts poor prognosis

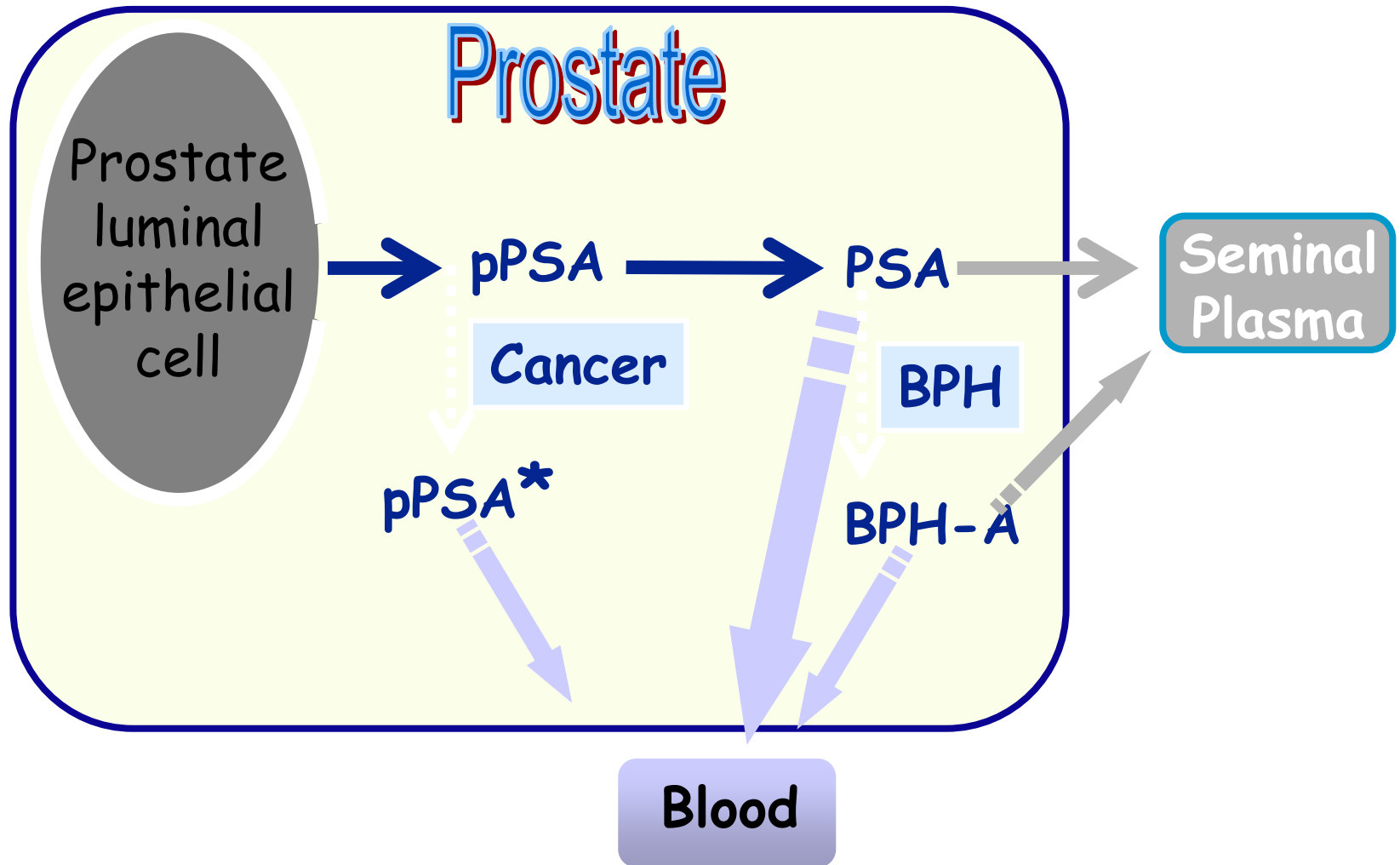


(Partin A. J Urol 1994)

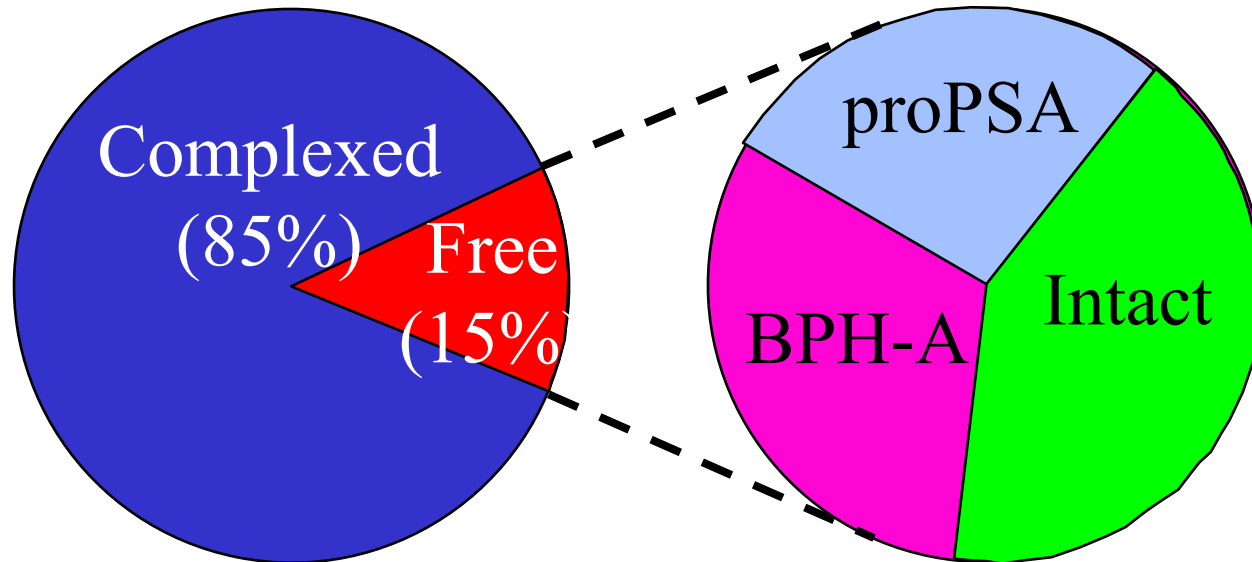
PSA percentiles by Age



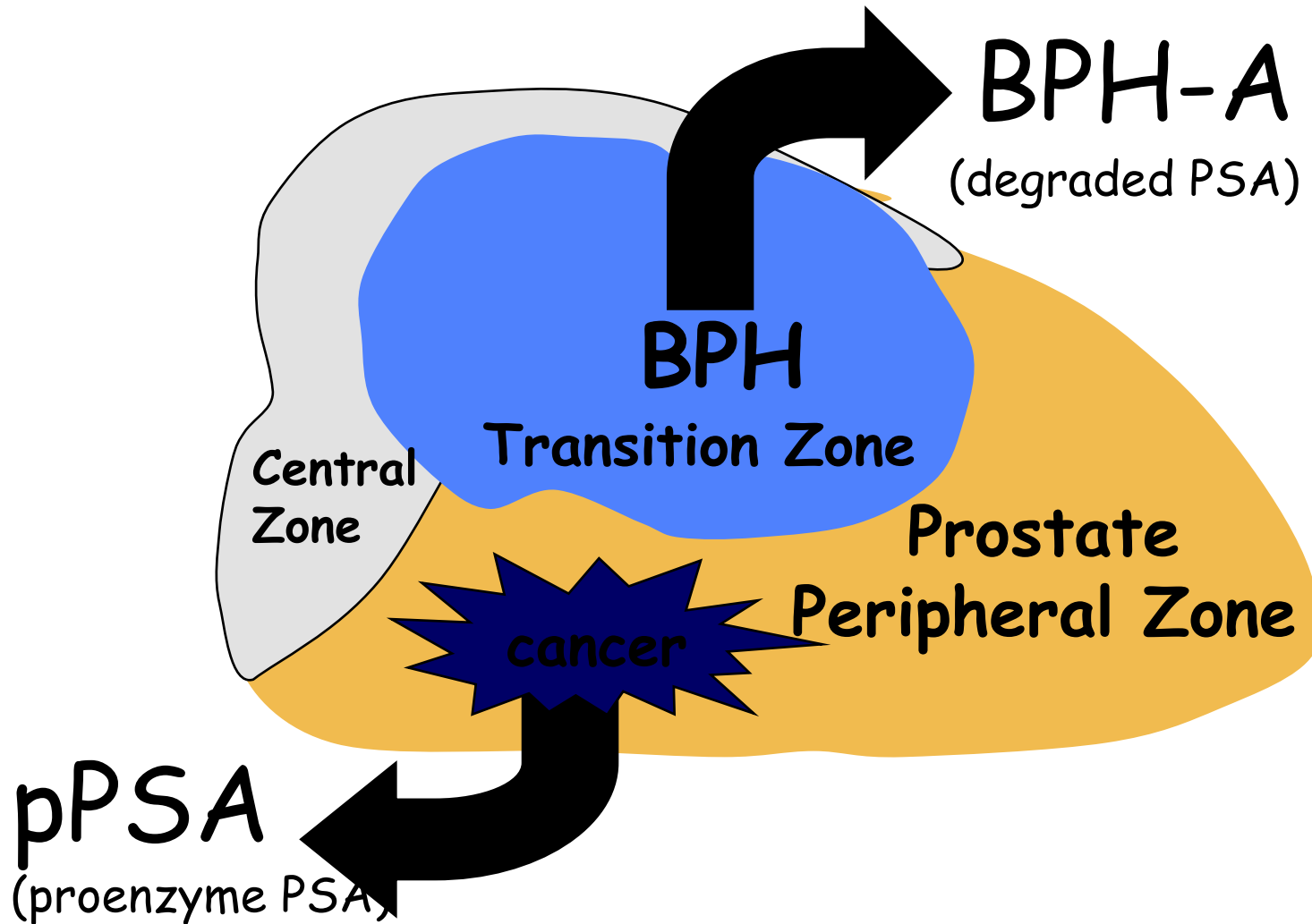
Disease-Associated Free PSA Forms



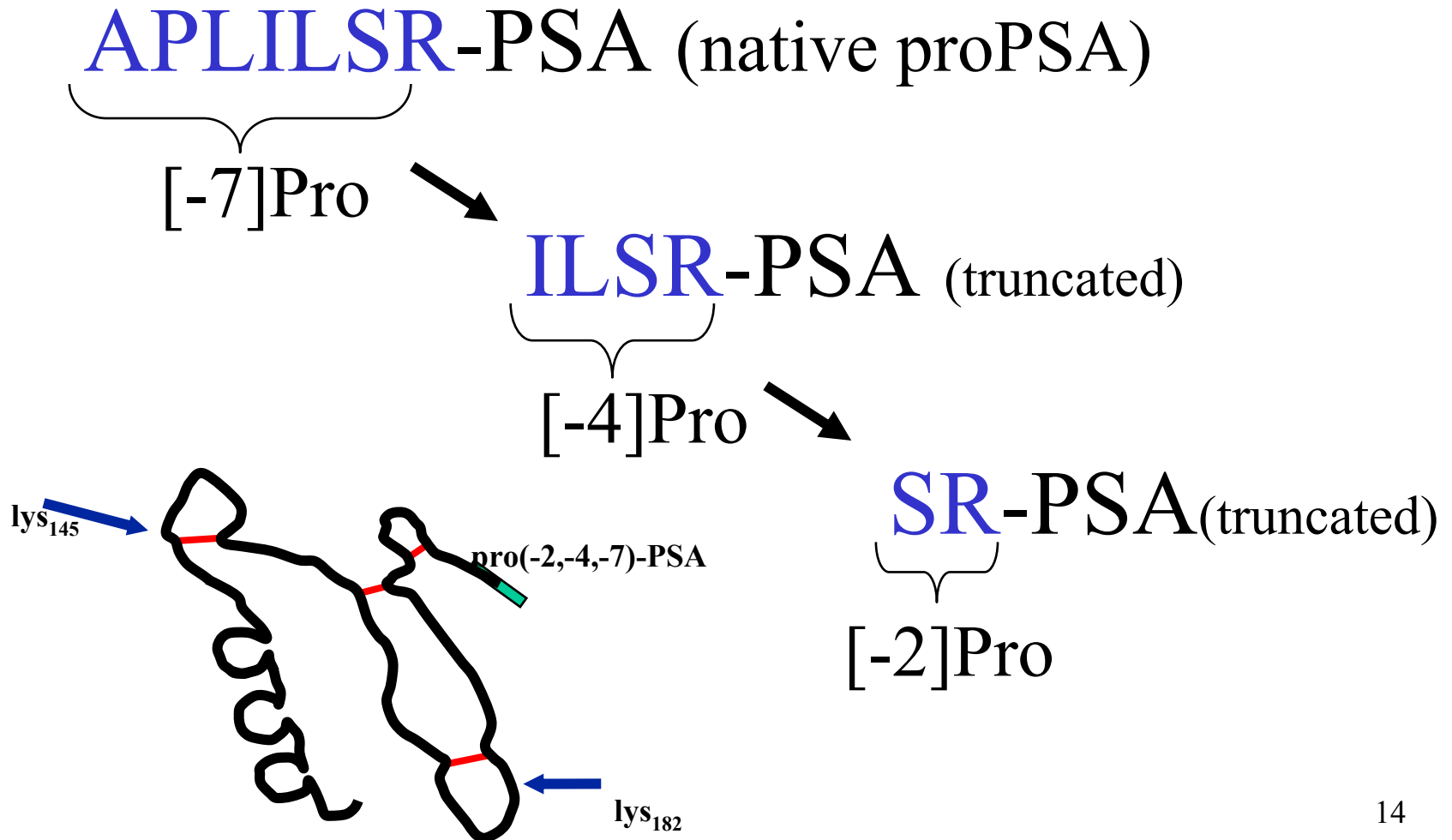
Disease-Associated Free PSA Forms



Disease-Associated Free PSA Forms



What is proPSA?



proPSA improves specificity

PROENZYME PSA FOR THE EARLY DETECTION OF PROSTATE CANCER IN THE 2.5–4.0 ng/mL TOTAL PSA RANGE: PRELIMINARY ANALYSIS

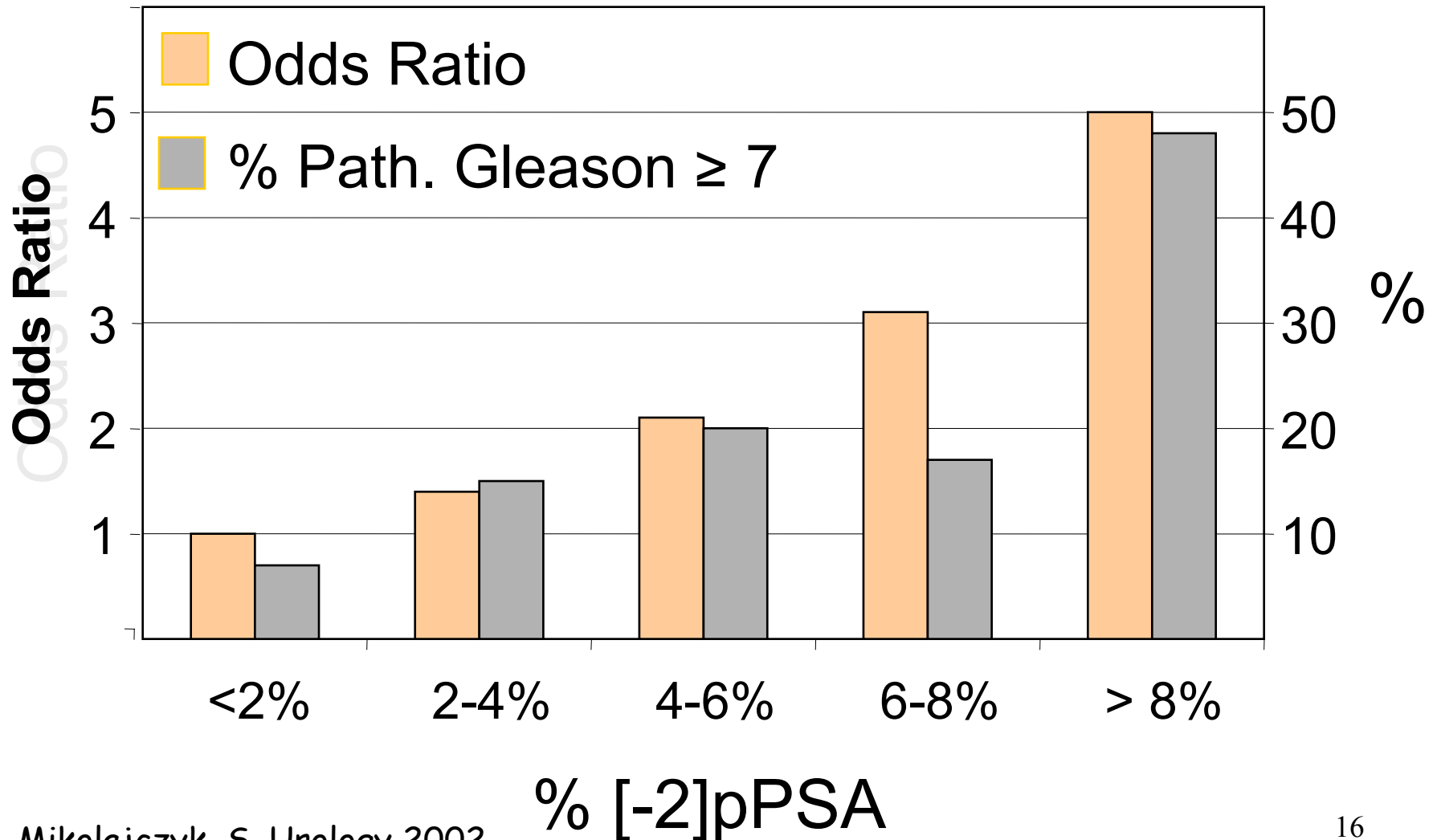
LORI J. SOKOLL, DANIEL W. CHAN, STEPHEN D. MIKOLAJCZYK, HARRY G. RITTENHOUSE, CINDY L. EVANS, HARRY J. LINTON, LESLIE A. MANGOLD, PHAEDRE MOHR, GEORG BARTSCH, HELMUT KLOCKER, WOLFGANG HORNINGER, AND ALAN W. PARTIN

At 75% sensitivity (detect cancer):

Specificity (spares unnecessary biopsies):

%pPSA = 59%, %fPSA = 33%.

Odds Ratio and Aggressiveness of Prostate Cancer Increases with %[-2]pPSA at PSA 2-4 ng/ml



Benign Prostatic Hyperplasia

- Affects 5.6 million men
- A quality of life disease
- A 50-year-old men has 35% lifetime incidence of surgical or medical intervention

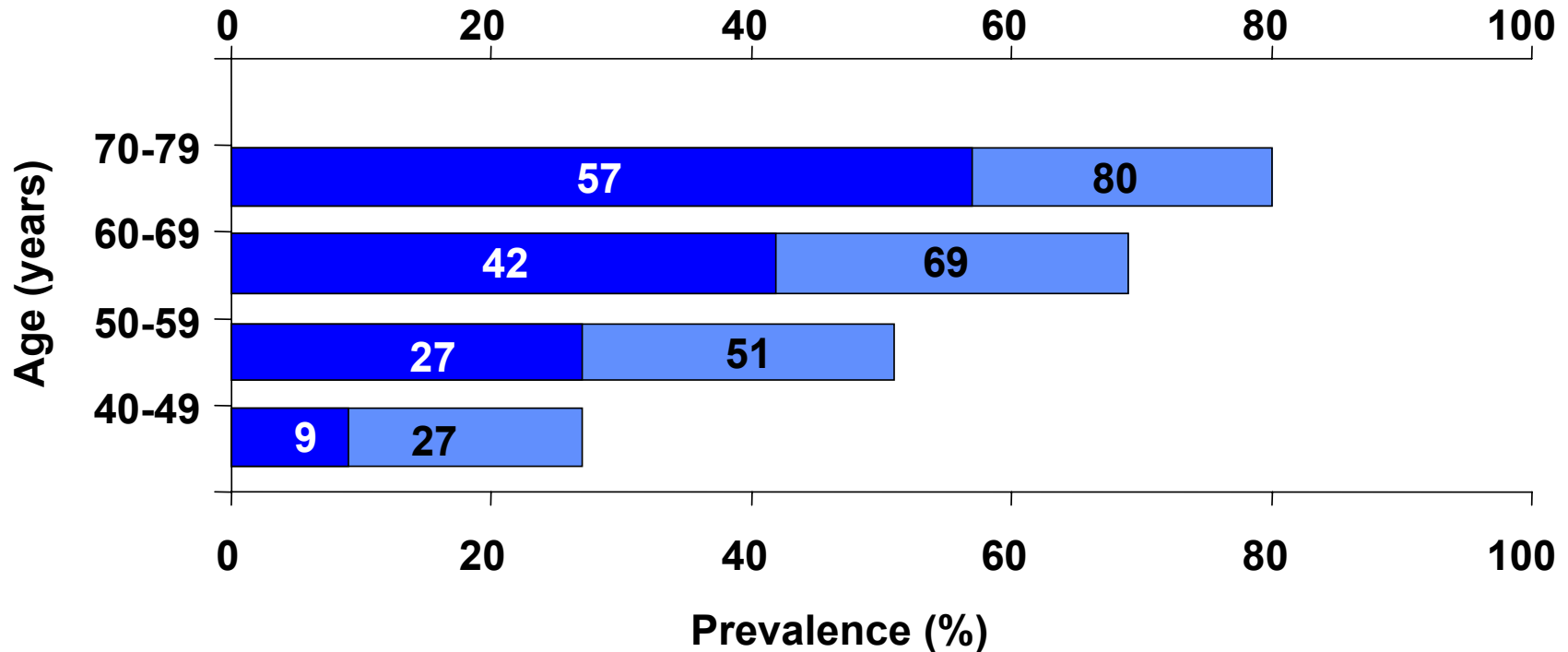
Jacobsen SJ. *Arch Intern Med.* 1995;477.

Girman CJ. *Urology.* 1994;825.

Oesterling JE. *Prostate Suppl.* 1996;67.

Jacobsen SJ. *J Urol.* 1997;481.

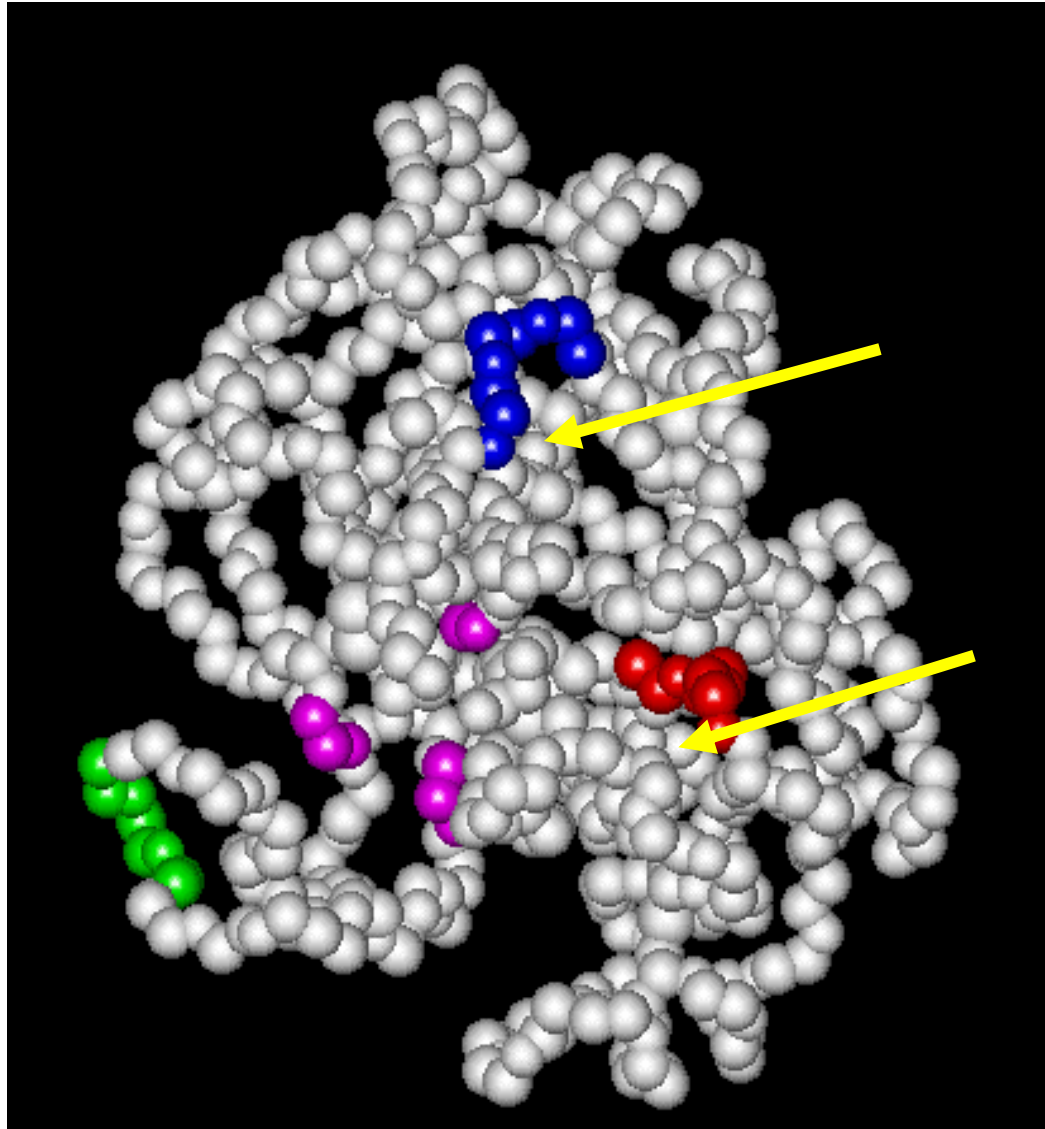
Age-specific prevalence of BPH



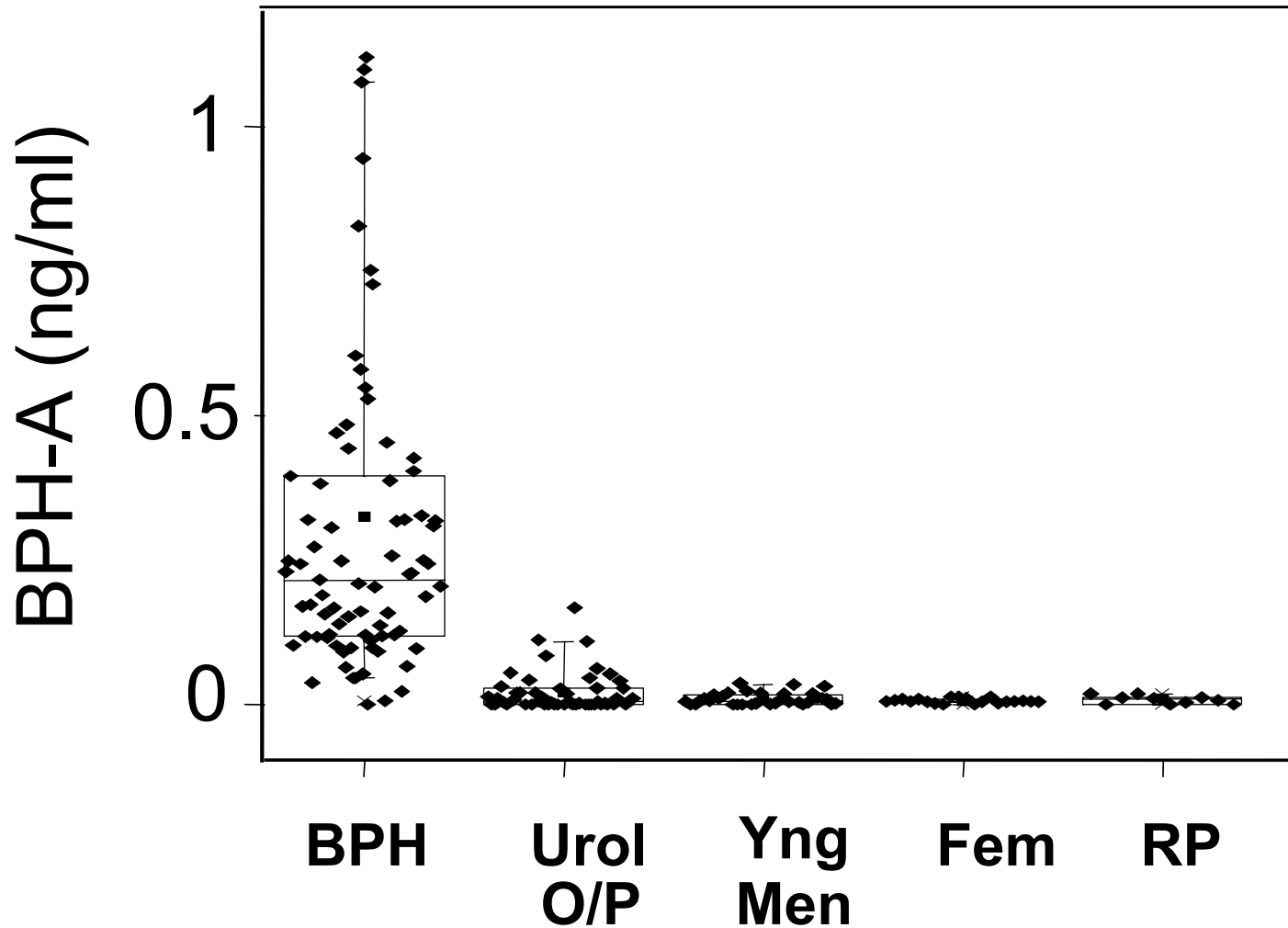
■ Clinical prevalence in the Baltimore Longitudinal Study of Ageing (based on history and Physical examination, n = 1,057)

■ Clinical prevalence in the Baltimore Longitudinal Study of Ageing (based on rectal examination, n = 1,057)

What is BPH-A?



BPH-A in Patient Serum



Utility of BPH-A

- Diagnosing BPH?
- Predicting response to therapy?
- Monitoring disease progression?
- Monitoring response to therapy?
- Ruling out cancer?

Progression of Serum PSA Forms

