



## Introduction

- Grade 5 Regions of Interest on MRI (ROI-5) may contain clinically significant prostate cancer (csCaP, GS  $\geq 3+4$ ) in up to 80% of cases<sup>1,2</sup>.
- Because of the high likelihood of csCaP, treatment on the basis of a ROI-5 alone, without biopsy confirmation, might be a consideration.

## Objective

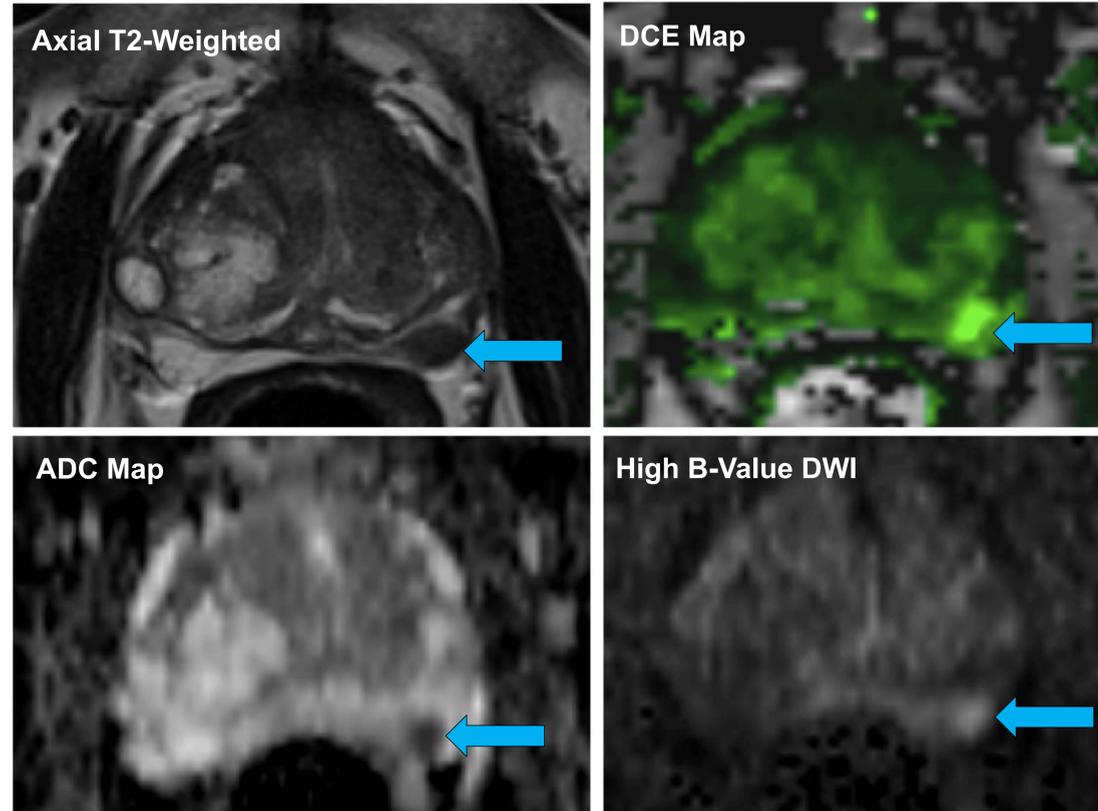
- To determine if ROI-5 can be used as a biopsy surrogate for csCaP, leading directly to treatment without need for tissue confirmation.

## Materials & Methods

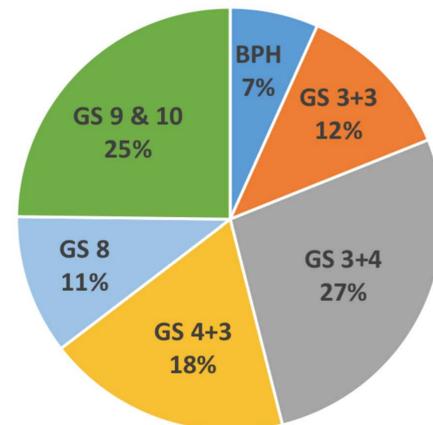
- From 2010 through 2016, 1825 men underwent MRI/US fusion biopsy at UCLA (Table 1).
- 254 men (14%) had ROI-5 (PI-RADS or UCLA scoring); 2/3 in the peripheral zone (PZ), 1/3 in transition zone (TZ).
- MRI was 3T multi-parametric (Fig. 1), biopsy was via MRI/US fusion (Artemis device).
- $\geq 3$  targeted biopsies were taken from each ROI and 12 systematic cores were also obtained.
- When immediate treatment was not performed, follow-up targeted biopsies of the ROI-5 lesions were obtained 6-42 months later.

**Table 1:** Patient characteristics (N=254)

Mean age, years (SD)	66.7 (7.2)
Ethnicity	
Caucasian	76% (193)
Other/Unknown	24% (61)
PSA (ng/ml), median (IQR)	8.3 (5.9, 14.7)
Prostate volume (cc), median (IQR)	41.0 (32.0, 59.0)
PSA density (ng/ml/cc), median (IQR)	0.2 (0.1, 0.4)
Max. ROI diameter (mm), median (IQR)	17.0 (14.0, 24.0)



**Fig. 1:** mpMRI demonstrating PI-RADSV2 Grade 5 region of interest (ROI) in left peripheral midgland (arrows). MRI/US fusion biopsy of ROI yielded 2 cores of Gleason 3+3=6 CaP. (68 y.o. WM with PSA=6.4 ng/ml and prostate volume=61cc.)



**Fig. 2:** Gleason scores found on targeted biopsy of ROI-5 lesions:  $\geq 4+3$  (54%),  $\leq 3+4$  (39%), BPH (7%).

**Table 2:** Results of repeat targeted biopsy of ROI-5 ROIs.

	Repeat Biopsy (n=59)	
	GS Unchanged (or Less)	GS Upgrade
<b>Initial Biopsy</b>		
GS $\leq 3+4$ (n=117)	30	29 (GS $\geq 4+3$ , n=14)

## Results

- Cancer detection rate (CDR) was 93% for any cancer GS $\geq 6$ , N=236/254 (Fig. 2).
- CDR for csCaP was 81% (206/254). Among men with csCaP, 69 (34%) were possible candidates for active surveillance (GS 3+4).
- In PZ, 85% (140/164) of ROI-5 targets were csCaP.
- In TZ, 73% (66/90) of ROI-5 targets were csCaP.
- Of men who had repeat targeted biopsy, 49% (29/59) had a Gleason upgrade. 14 were upgraded  $\geq 4+3$  (Table 2).

## Conclusions

- The majority of men with a Grade 5 MRI target (81% here) have csCaP (Gleason  $\geq 3+4$ ).
- However, many with a Grade 5 target (39% here) could be candidates for A.S. (Gleason  $\leq 3+4$ ).
- Caution: when biopsy of a Grade 5 target reveals  $<$ csCaP, repeat biopsy is indicated, since csCaP will often be found (nearly 50% in present series).
- Curative intervention based on MRI findings alone, without biopsy confirmation, could result in overtreatment in many men and should not be considered.

## Acknowledgments

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## References

1. Mehravivand S, Bednarova S, Shih JH, et al.: Prospective evaluation of PI-RADS version 2 using the international society of urological pathology prostate cancer grade group system. J Urol 2017; **198**: 538-590.
2. Filson CP, Natarajan S, Margolis DJA, et al: Prostate cancer detection with magnetic resonance-ultrasound fusion biopsy: The role of systematic and targeted biopsies. Cancer 2016; **122**: 884-892.