

## Supplement

**Table S1.** Two-Layer LMM considering the slides nested within patients as the random effect. Estimate and 95% Confidence Intervals given in units of mm<sup>2</sup>/s.

	<b>Fixed effect</b>	<b>Estimate</b>	<b>95% CI</b>	<b>t-value</b>	<b>Pr(&gt; t )</b>
ADC1000	Intercept	1.311	(1.203, 1.419)	24.288	<0.0001
	Cribriform vs Fused Glands	-0.062	(-0.069, -0.055)	-18.013	<0.0001
	<b>Random effect</b>	<b>Std Dev</b>	<b>95% CI</b>		
	Subject:Slide (Intercept)	0.247	(0.213, 0.290)		
	Subject (Intercept)	0.222	(0.144, 0.321)		
	Residual	0.287	(0.286, 0.288)		
	ACD2000	<b>Fixed effect</b>	<b>Estimate</b>	<b>95% CI</b>	<b>t-value</b>
Intercept		0.959	(0.878, 1.041)	23.58	<0.0001
Cribriform vs Fused Glands		-0.033	(-0.038, -0.029)	-14.621	<0.0001
<b>Random effect</b>		<b>Std Dev</b>	<b>95% CI</b>		
Subject:Slide (Intercept)		0.170	(0.147, 0.200)		
Subject (Intercept)		0.172	(0.115, 0.245)		
Residual		0.189	(0.188, 0.190)		
Lumen	<b>Fixed effect</b>	<b>Estimate</b>	<b>95% CI</b>	<b>t-value</b>	<b>Pr(&gt; t )</b>
	Intercept	0.0471	(0.039, 0.056)	10.851	<0.0001
	Cribriform vs Fused Glands	0.0247	(0.022, 0.028)	15.456	<0.0001
	<b>Random effect</b>	<b>Std Dev</b>	<b>95% CI</b>		
	Subject:Slide (Intercept)	0.0426	(0.0370, 0.0490)		
	Subject (Intercept)	0	(0, 0.0170)		
	Residual	0.135	(0.134, 0.135)		
Stroma	<b>Fixed effect</b>	<b>Estimate</b>	<b>95% CI</b>	<b>t-value</b>	<b>Pr(&gt; t )</b>
	Intercept	0.815	(0.777, 0.851)	45.071	<0.0001
	Cribriform vs Fused Glands	0.0697	(0.064, 0.075)	24.470	<0.0001
	<b>Random effect</b>	<b>Std Dev</b>	<b>95% CI</b>		
	Subject:Slide (Intercept)	0.170	(0.146, 0.198)		
	Subject (Intercept)	0.0304	(0, 0.090)		
	Residual	0.238	(0.237, 0.239)		
Epithelium	<b>Fixed effect</b>	<b>Estimate</b>	<b>95% CI</b>	<b>t-value</b>	<b>Pr(&gt; t )</b>
	Intercept	0.140	(0.103, 0.179)	7.471	<0.0001
	Cribriform vs Fused Glands	-0.0941	(-0.0990, -0.09)	-40.486	
	<b>Random effect</b>	<b>Std Dev</b>	<b>95% CI</b>		
	Subject:Slide (Intercept)	0.163	(0.140, 0.192)		
	Subject (Intercept)	0.0429	(0, 0.0980)		
	Residual	0.194	(0.193, 0.195)		