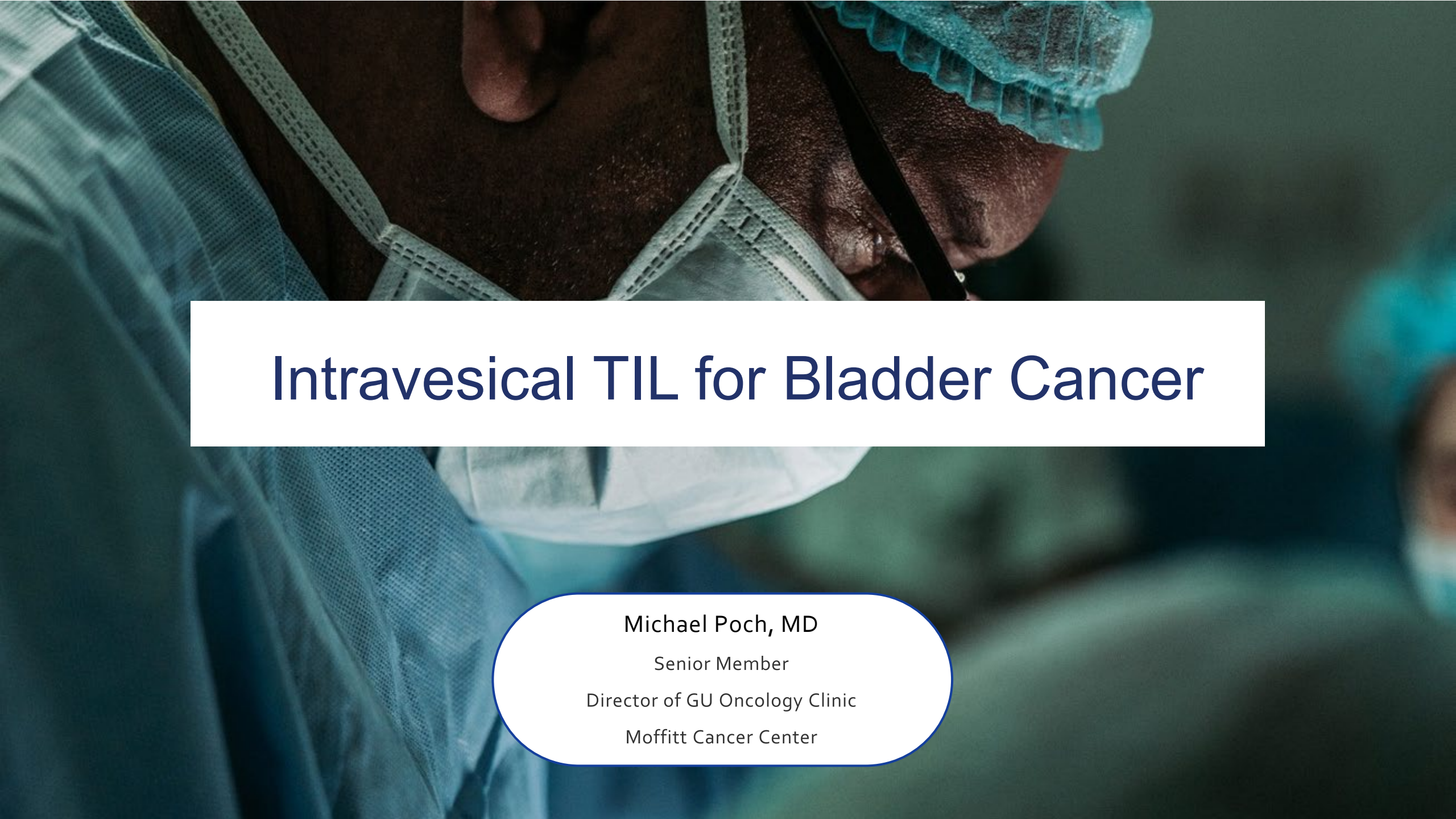




Intravesical TIL for Bladder Cancer

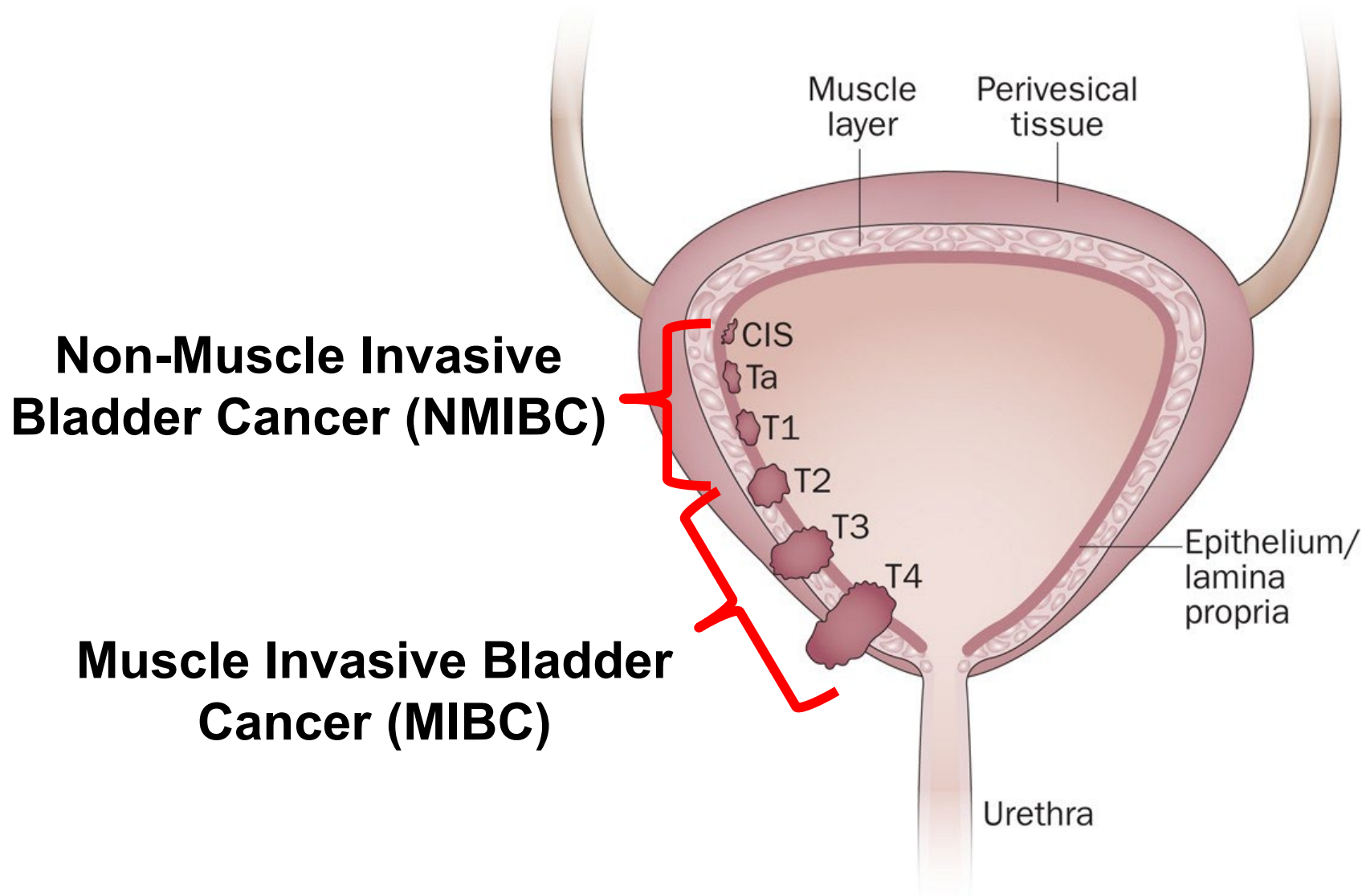
Michael Poch, MD

Senior Member

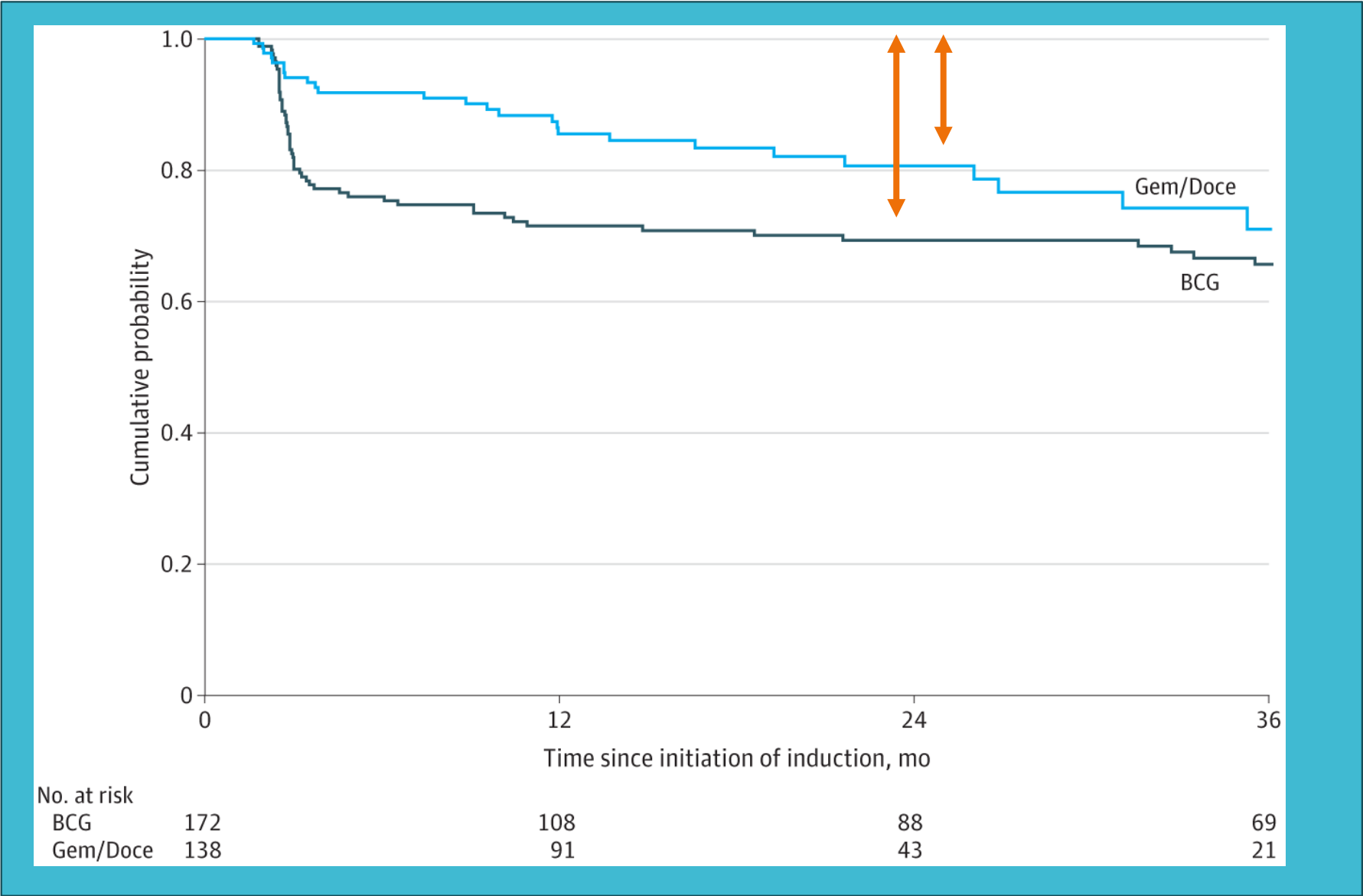
Director of GU Oncology Clinic

Moffitt Cancer Center

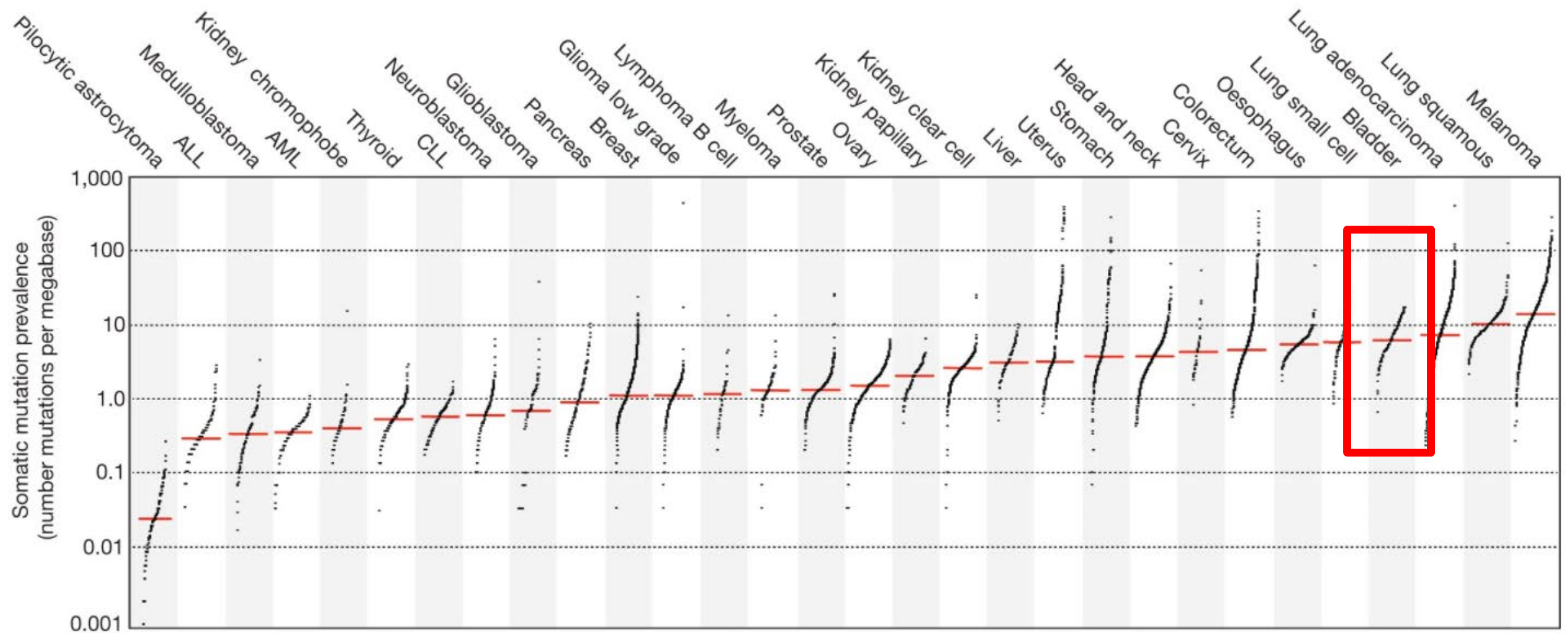
Bladder Cancer is Treated Based on Muscle Invasion



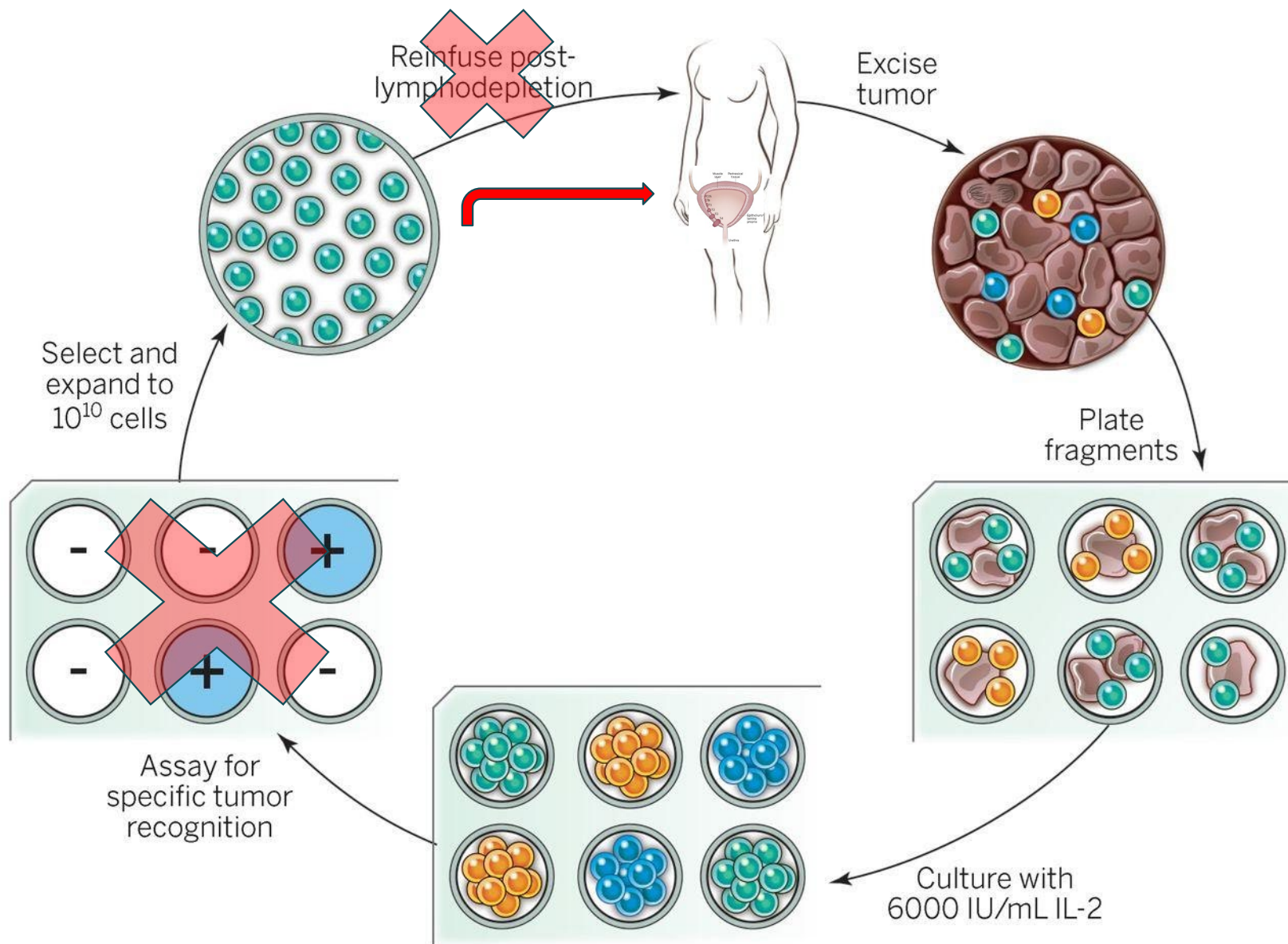
Recurrence after in bladder treatments



Bladder Cancer Has a High Mutation Burden



Alexandrov, Ludmil B., et al. "Signatures of mutational processes in human cancer." *Nature* 500.7463 (2013): 415-421.



Eligibility/Screening "SS1"

- Histologically or cytologically ~~BCG Unresponsive NMIBC~~ (Papillary or CIS)
- ECOG 0-1
- No prior chemotherapy
- No prior PD-1/PD-L1

- N=12
- Bladder Resection

Up to 4-6 weeks
Culture

- Secondary Screening "SS2"
- PreREP

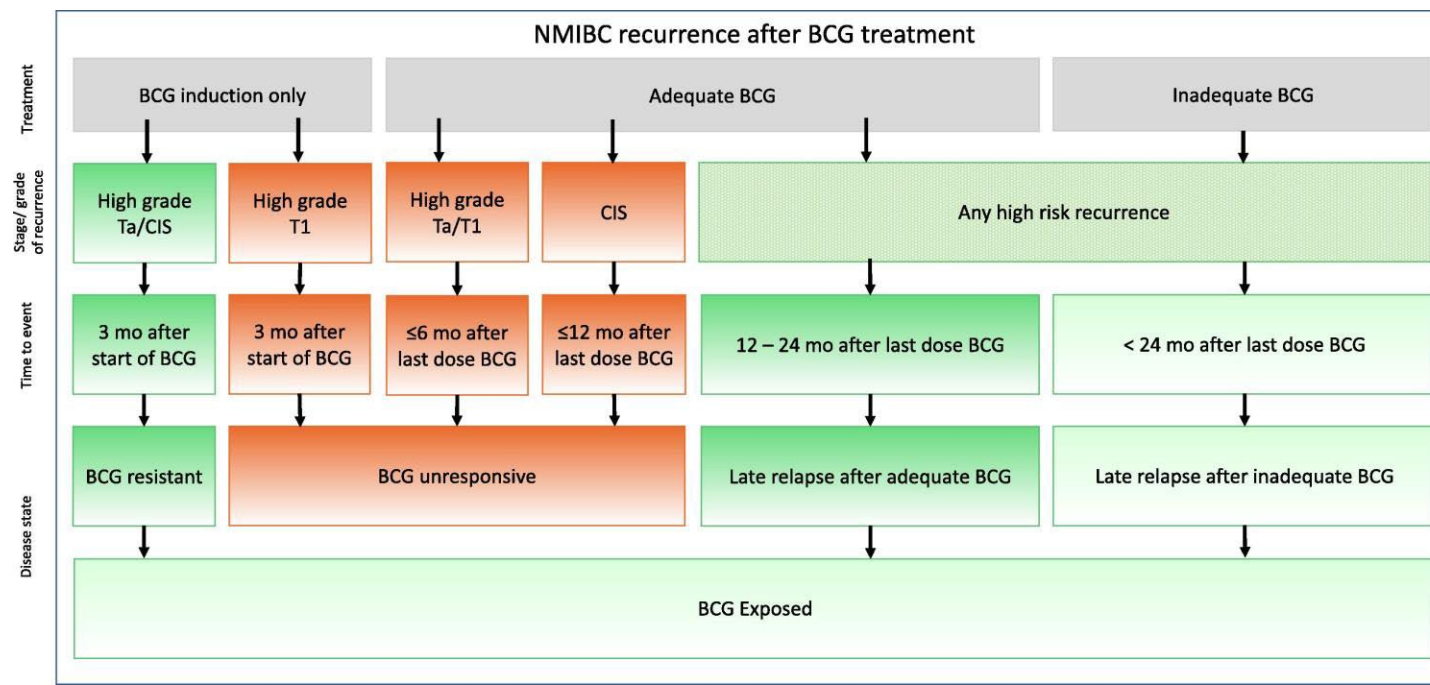
2 weeks
REP

- N~9
- **Outpatient** Intravesical ACT
- 1 x week x 4 weeks ~ 3.2×10^8 per 40 mls x 4
- Assess for AEs/DLTs

6 weeks

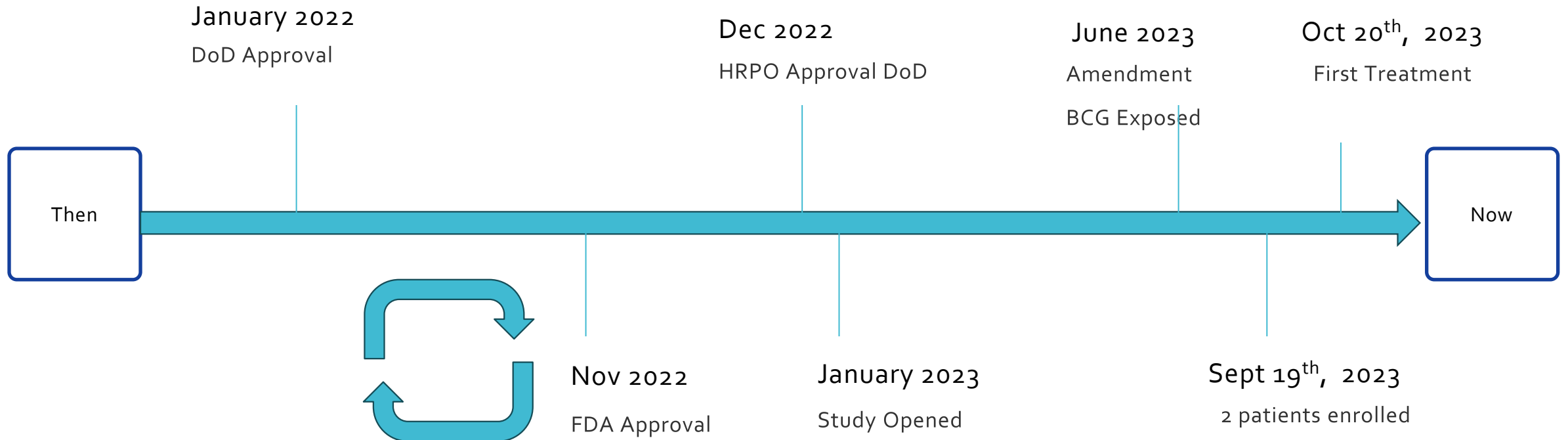
Cystoscopy

BCG Exposed





Timeline



Patients So Far:

Patient Number	Tumor Weight (g)	Number of Fragments Plated	PreREP Total
BLTo1	0.6	7	1.81E+07
BLTo2	0.1	15	1.75E+08
BLTo3	1.1	48	8.74E+07
BLTo4	0.2	7	1.85E+07

Flow Data:

Patient Number	CD3+CD45+	CD3+CD45+CD4+	CD3+CD45+CD8+
BLT01	98.8	98.7	0.96
BLT02	97.9	24.8	74.3
BLT03	96.8	99.8	0.05
BLT04	97.4	88.1	9.15

Patient Number	Dose Total	Doses received	Infusion 1	Infusion 2
BLT01	3.20E+08	4	2.79E+08	2.99E+08
BLT02	3.20E+08	4	3.08E+08	2.44E+08
BLT03	3.20E+08	4	N/A	N/A
BLT04	3.20E+08	4	N/A	3.16E+08

Clinical Outcomes:

Patient Number	Age	Gender	Diagnosis	AEs	Recurrence	Time to Recurrence	Progression	Freedom from Cystectomy
BLTo1	65	M	HG Ta	N	N	NA (10 mos fu)	N	Y
BLTo2	73	M	HG T1	N	Y	2	N	Y
BLTo3	60	M	HG Ta	N	Y	2	N	N*
BLTo4	76	M	HG Ta	N	N	NA	N	Y
BLTo5	77	M	HG T1	N(1 dose)			NA	

**Cystectomy choice secondary to recurrence not progression*

Treatment	1 year RFS	
	Ta/T1	CIS (+/- Ta/T1)
Anktiva + BCG*		58%
Nadofarogene*	43%	24.3%
Pembro*		19%
Gem/Doce	62%	
Repeat BCG*	50%**	

* FDA approved

** Study from 1988 and 1990

Lessons learned:

- We can grow TIL from small tumors
- 3 month - 50% recurrence
- No progression
- BCG shortage and unresponsive is/was challenge

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Molecular Genomics Core
Proteomics and Metabolomics Core
Biostatistics and Bioinformatics Core
Small Animal Imaging Lab (SAIL)
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