Kidney Cancer Research Summit KCRS21

Characterizing the immune response in patients with renal cell carcinoma (RCC) following COVID-19 vaccination

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Declaration of Interests

SKP: **Research Funding**: Eisai, Pfizer, Bristol Myers Squibb, Aveo, Nektar Therapeutics, Exelixis, QED

RS: **Consulting**: Janssen, AstraZeneca, Novartis, Merck

ND: **Consulting**: Vivreon

YL: **Personal Fees**: Pfizer, EMD Serrano, Seattle Genetics

TD: **Personal Fees**: Exelixis, Janssen, Bayer, BMS

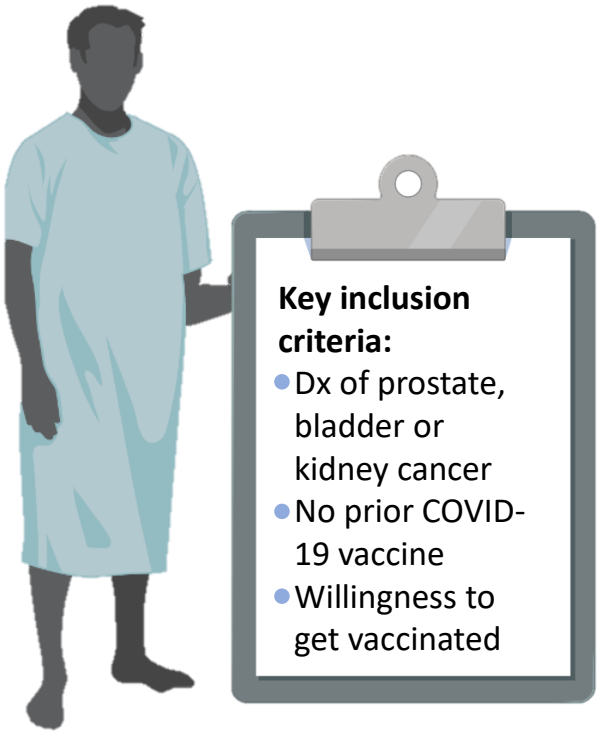
Background

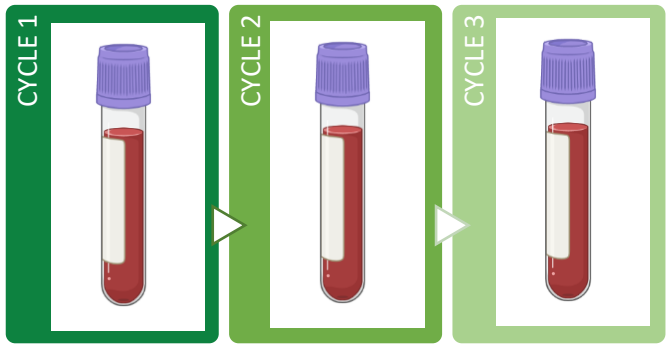
- While there have been several studies exploring the biological impact of the COVID-19 vaccination in cancer patients, patients with RCC are not well represented
- Our study sought to determine the biological effect of commercially available COVID-19 vaccinations, in the United States, in patients with RCC

Author Reference	Vaccine	Total # of patients	# of solid tumor patients (GU patients)	Seroconversion rate in solid tumor patients
Thakker et al.[1]	BNT162b2 mRNA-1273 AD26.COV2.S	200	134 (18)	98.0%
Ligumsky et al.[2]	BNT162b2	326	326 (29)	88.0%
Goshen-Lago et al.[3]	BNT162b2	232	232 (48)	86.0%
Iacono et al.[4]	BNT162b2	36	29 (9)	96.2%
Monin et al.[5]	BNT162b2	151	95*(15)	94.7%
Massarweh et al.[6]	BNT162b2	102	102 (8)	90.2%

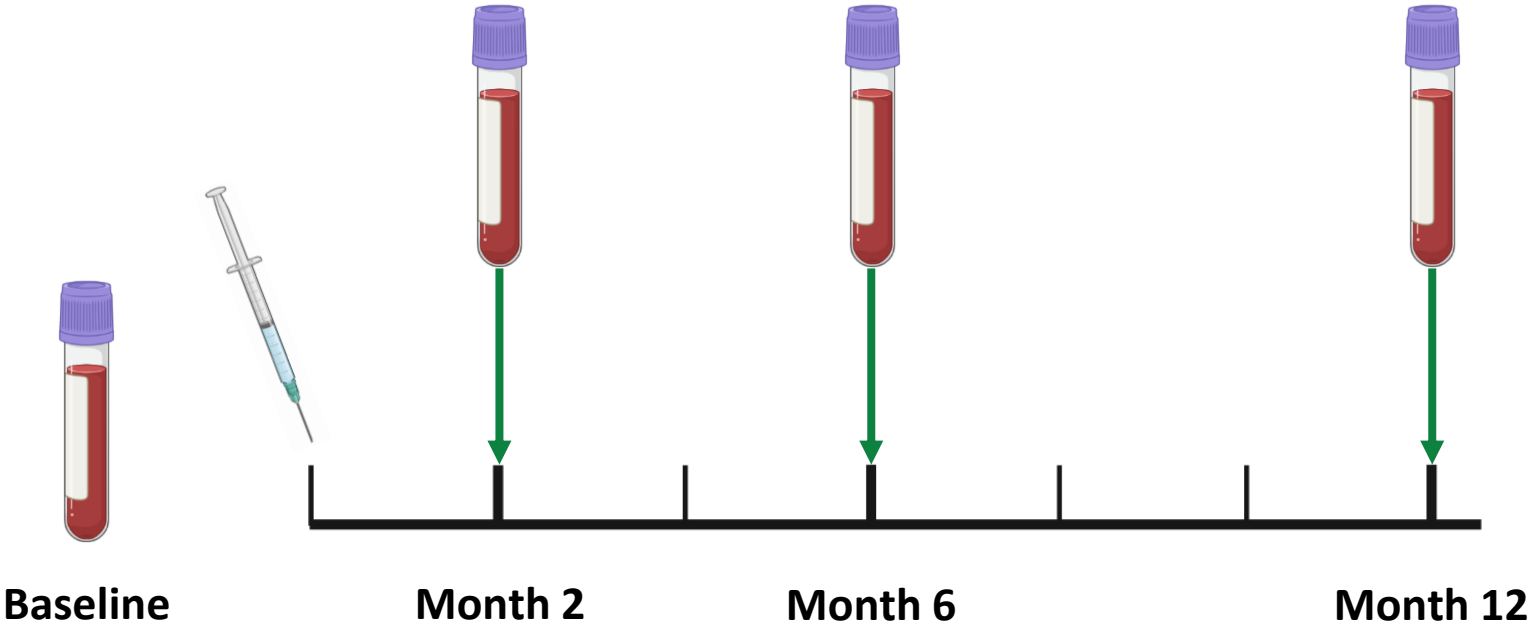
*Only 19 included in final analysis

Methods





InBios
SCoV-2 Detect™ IgG ELISA

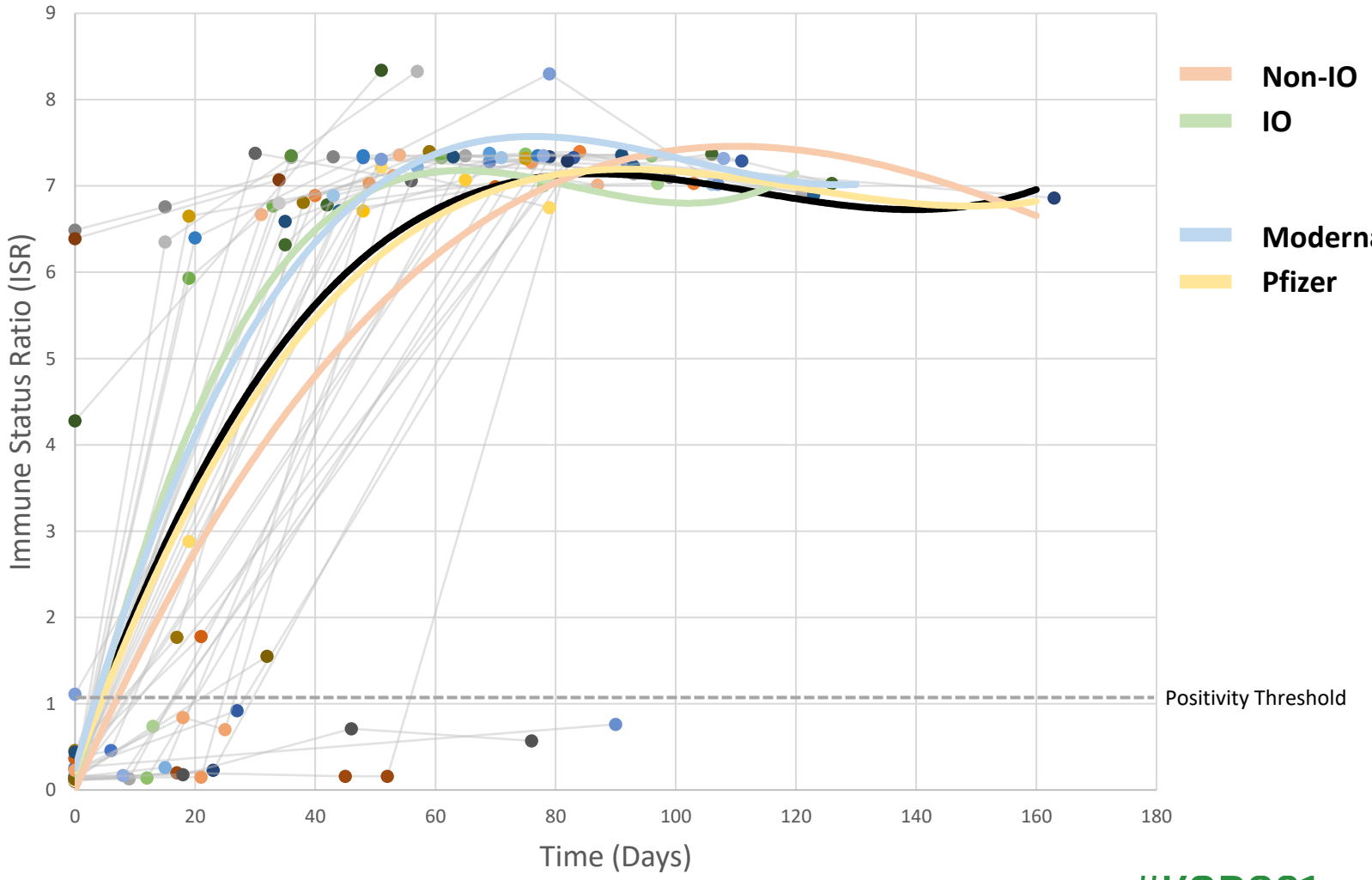


Results

Patient Demographics	
Number of patients	38
Median age, years (IQR)	63 (57-70)
Gender – no. (%)	
Male	26 (68.4%)
Female	12 (31.6%)
Race – no. (%)	
White	31 (81.6%)
Asian	4 (10.5%)
Black	1 (2.6%)
Unknown	2 (5.3%)
Systemic treatment type – no. (%)	
Immunotherapy	22 (57.9%)
Targeted Therapy	13 (34.2%)
Chemotherapy	1 (2.6%)
Administered vaccine – no. (%)	
BNT162b2 (Pfizer)	25 (65.8%)
mRNA-1273 (Moderna)	13 (34.2%)
Comorbidities – no. (%)	
Cardiovascular	24 (63.1%)
Auto-immune	8 (21.1%)
Pulmonary	3 (7.9%)
Diabetes	3 (7.9%)

Results

- Our results demonstrated a seroconversion rate of 92.1% at the 2-month timepoint
- No difference in ISR is observed across different treatment types or vaccine administered



Results

- At the 2-month timepoint following COVID-19 vaccination, 3 patients in this cohort demonstrated negative antibody titers

	Patient 1	Patient 2	Patient 3
Sex	Male	Male	Male
Age	64	73	59
Race	White	White	White
Vaccine	Pfizer	Moderna	Pfizer
ISR baseline	0.12	0.26	0.15
ISR month 2	0.16	0.76	0.71
Elapsed time (days)	52	90	46
Metastatic disease	Yes	Yes	Yes
Treatment	Cabozantinib + nivolumab	Not on active treatment	Nivolumab
Immunosuppressive drug	None	Methotrexate Methylprednisolone	None
Recent surgery	Yes	No	No
Comorbidities	HTN	Rheumatoid arthritis, vasculitis	Chronic kidney disease

Conclusions

- Our data suggest a sufficient COVID-19 antibody response, as represented by an immune status ratio (ISR), in a majority of patients with metastatic RCC who have received a commercially available COVID-19 vaccine
- Limitations of our study:
  - Limited sample size
  - Lack of synchrony in specimen collection timepoints across patients due to variable visit times and treatment cycle lengths
- Specimen collection is ongoing to assess for any changes in ISR values at 6 and 12 months, as well as following administration of the recently FDA approved “booster” dose
  - We will be conducting further analysis through T-cell receptor sequencing to identify vaccine-induced clonotypes
- Future efforts should focus on individuals who achieve suboptimal antibody titers

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- The patients and their families
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  (Chair: Ravi Salgia MD, PhD)

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