



## Alexander Ren

MD Student, expected graduation Spring 2026

### Publications

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#### PUBLICATIONS

- **Brain injury in COVID-19 is associated with dysregulated innate and adaptive immune responses.** *Brain : a journal of neurology*  
Needham, E. J., Ren, A. L., Digby, R. J., Norton, E. J., Ebrahimi, S., Outtrim, J. G., Chatfield, D. A., Manktelow, A. E., Leibowitz, M. M., Newcombe, V. F., Doffinger, R., Barcenas-Morales, G., Fonseca, et al  
2022
- **Immunometabolism, a new therapeutic development for immunotherapies of high-grade gliomas: a narrative review.** *Chinese clinical oncology*  
Wu, J. Y., Ren, A. L., Lim, M.  
2022; 11 (4): 26
- **Health Care Resource Utilization in Management of Opioid-Naive Patients With Newly Diagnosed Neck Pain.** *JAMA network open*  
Jin, M. C., Jensen, M., Zhou, Z., Rodrigues, A., Ren, A., Barros Guinle, M. I., Veeravagu, A., Zygourakis, C. C., Desai, A. M., Ratliff, J. K.  
2022; 5 (7): e2222062
- **Neurological update: COVID-19.** *Journal of neurology*  
Ren, A. L., Digby, R. J., Needham, E. J.  
2021; 268 (11): 4379-4387