**MULTI-OMICS DATA IN THE PREDICTION OF KIDNEY CANCER SUBGROUPS**

**ANNOTATION 1**

(1) Muhamed Ali, Ali, Hanqi Zhuang, Ali Ibrahim, Oneeb Rehman, Michelle Huang, and Andrew Wu. 2018. "**A Machine Learning Approach for the Classification of Kidney Cancer Subtypes Using miRNA Genome Data**" Applied Sciences 8, no. 12: 2422. <https://doi.org/10.3390/app8122422>

(2) In this paper, they proposed a machine learning approach for the classification of kidney cancer subtypes using miRNA genome data. (3) The authors downloaded data from TCGA, found the most discriminative miRNAs and then used a machine learning tool to group kidney cancer five subtypes. (4) Their research focused on kidney cancer sub-type detection and classification in an effort to assist researchers in medicine to address the key points of kidney subtypes and their characteristics. (5) The article is useful to our research topic, as authors suggested that the identified miRNAs in this study can be used as biomarker candidates for kidney cancer subtype classification. (6) The main limitation of this article is that the effectiveness of these selected miRNAs were not validated, (7) thus the authors indicated that further, the effectiveness must be validated by wet-lab experiments or further clinic studies. (8) The article is forming the basis of our research; since authors did the same research as ours and only difference is using mRNAs genome data instead of multi-omics data.