The most common types of cancer in the cohort were colorectal and pancreatic cancer. (27.7% and 10.8%, respectively)

RESULTS

The most common mutation was KRAS G12D mutation followed by KRAS G12V and KRAS amplification. NRAS and HRAS mutations are seen in 7% and 2% of patients with any RAS mutation.

Figure 1. (Left) Characteristics of mutations in the patients harboring RAS mutation. (N = 163)

The color of blue, green and red means low, intermediate and high expression of immune checkpoint molecules in patients with RAS mutation. In contrast, frequency of high VTCN1 expression is less frequent in patients with any RAS mutation. (N = 2381).

Figure 2. (bottom) Heatmap of immune checkpoint expression depending on RAS mutational status.

The color of blue, green and red means low (rank value: 0-24), Intermediate (25-74), and High (75-100) expression. Visually, high expression of NOS2 is more frequently seen in patients with RAS mutation. In contrast, frequency of high expression of VTCN1 is less frequent in patients with RAS mutation.

REFERENCES


2. Yang B et al., MEK Inhibition Remodels the Immune Landscape of Mutant KRAS Tumors to Overcome Resistance to PARP and Immune Checkpoint Inhibitors, Cancer Res. 2021 May 15;81(10):2714-2729.


CONCLUSIONS

RAS mutations were inversely associated with high expression of VTCN1 in this pan-cancer cohort.

Although there is no medication to target VTCN1 and our data do not support the combination therapy of potential VTCN1 inhibition and RAS inhibition, the association between RAS status and VTCN1 expression suggests the relationship between RAS and immune checkpoint.

Further study on the correlation between genetic mutation and immunological status of cancer may suggest a potentially effective combination therapy.