

\* Balance classes of directions due to coefficients close to zero are resolved with  $\text{sign} = 0$

Figure 1 displays a series of 12 bar charts, each representing a different dataset: CYT, IS, IPS, IMPRES, RohIS, chemokine, IS\_Davoli, Proliferation, IFny, ExpandedImmune, T\_cell\_inflamed, TIDE, and MSI. Each chart compares the performance of three methods: Elastic Net (red bars), L21 (green bars), and L21\_top (orange bars). The y-axis represents a performance metric, and the x-axis lists the datasets. The charts show that Elastic Net generally performs better than L21 and L21\_top across most datasets, with L21\_top often showing the lowest performance.

**Analysis**  Elastic\_Net\_all  L21\_all  L21\_all\_top