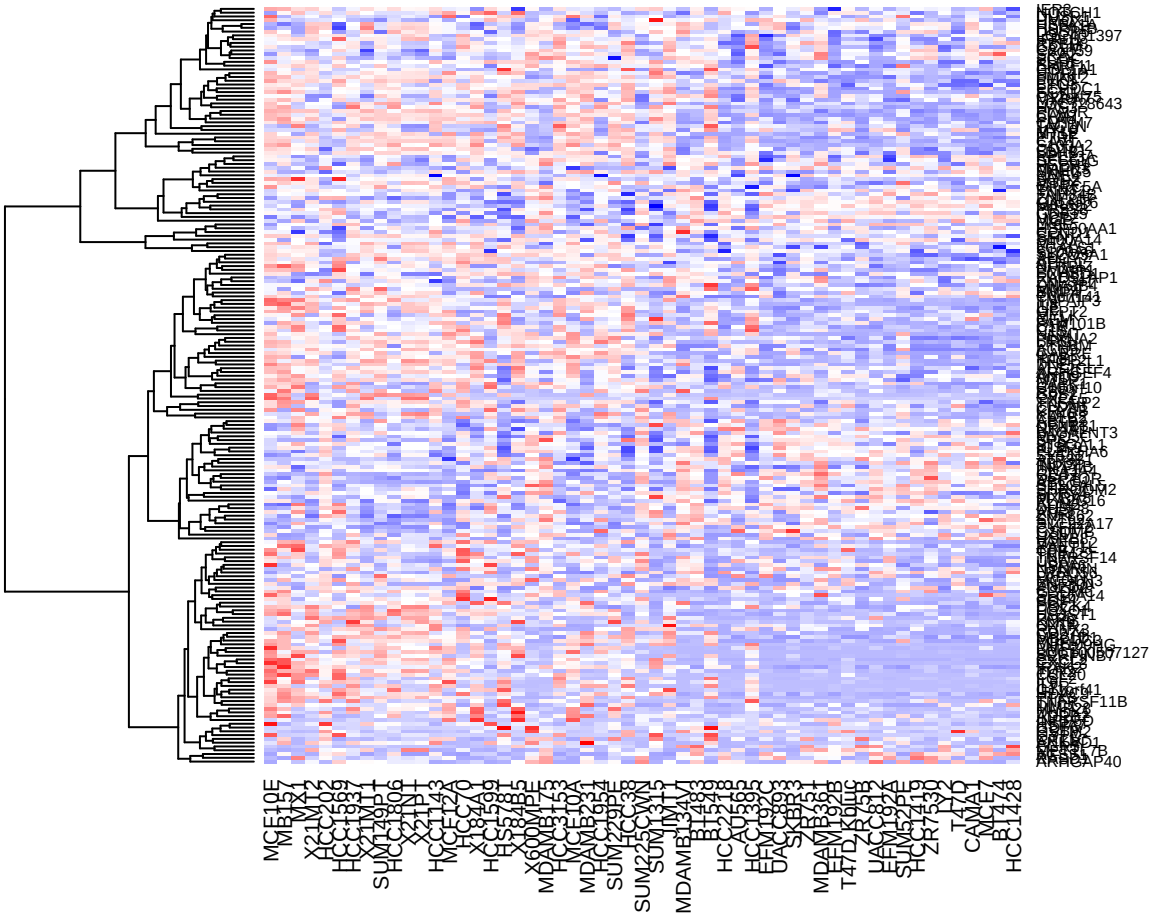erk signature