Unknown Alcohol, Aldehyde or Ketone

2,4-DNPH

- ppt
  - recryst ppt
  - dry
  - mp

- no ppt
  - alcohol
    - Ce$^{+4}$
      - yellow to red
      - no color change
      - alcohol
        - NOT alcohol
          - 3,5-DNBC
            - ppt
              - recryst ppt
              - dry
              - mp

  - aldehyde or ketone
    - Schiff
      - magenta
        - no color change
        - ketone
          - aldehyde
            - I$_2$/OH$^-$
              - yellow ppt
                - methyl ald/ket
              - no ppt
                - NOT methyl ald/ket

- color of DNP ppt may indicate whether C=O is conjugated
  - yellow -> most likely non-conj
  - orange/red -> most likely conj

(ppt = precipitate)