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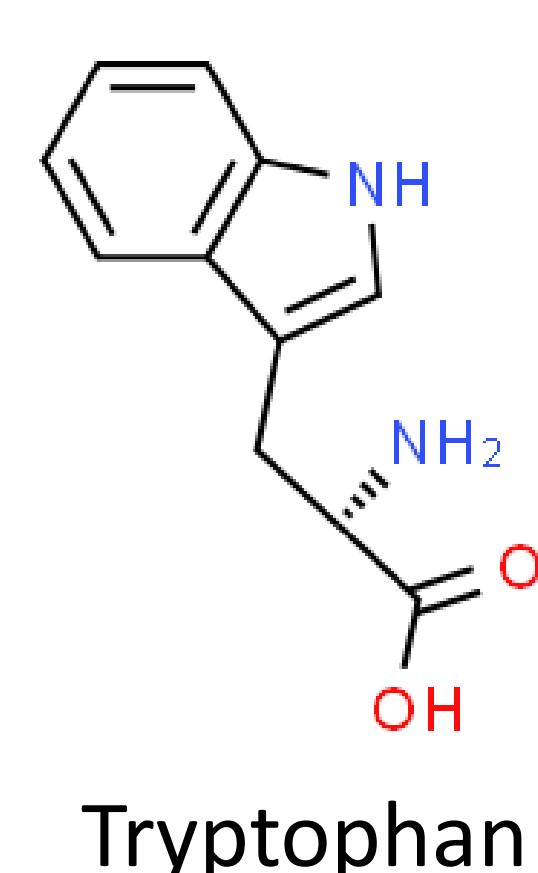
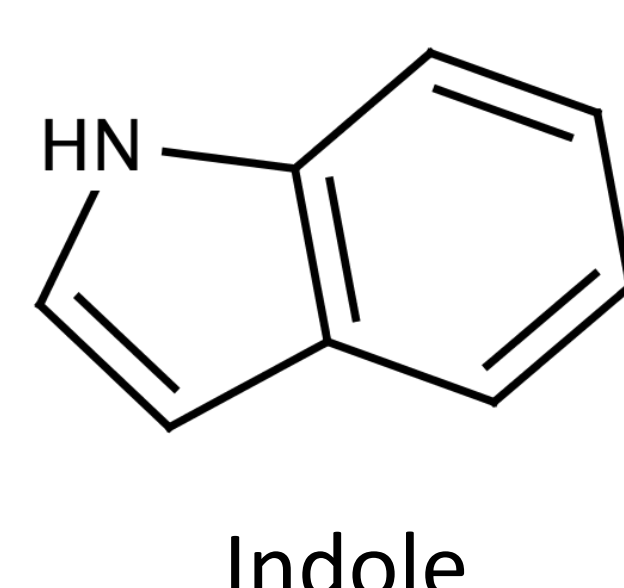
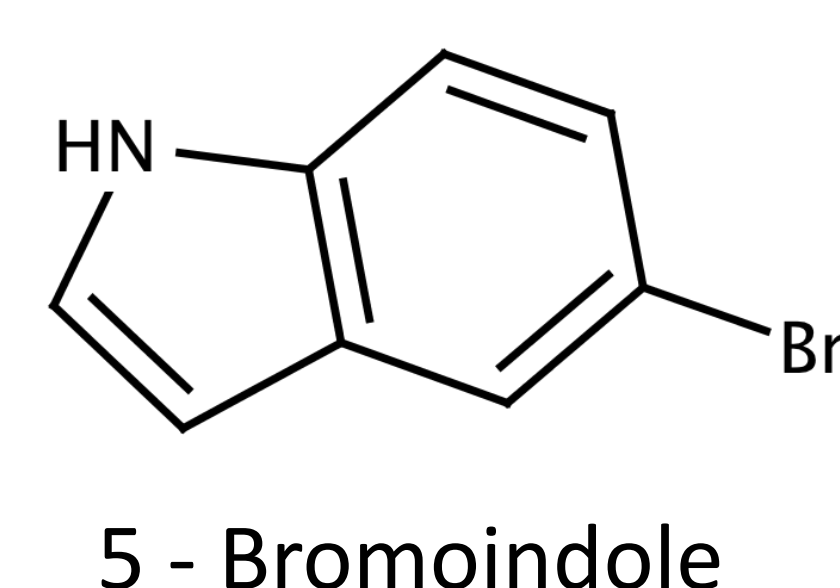
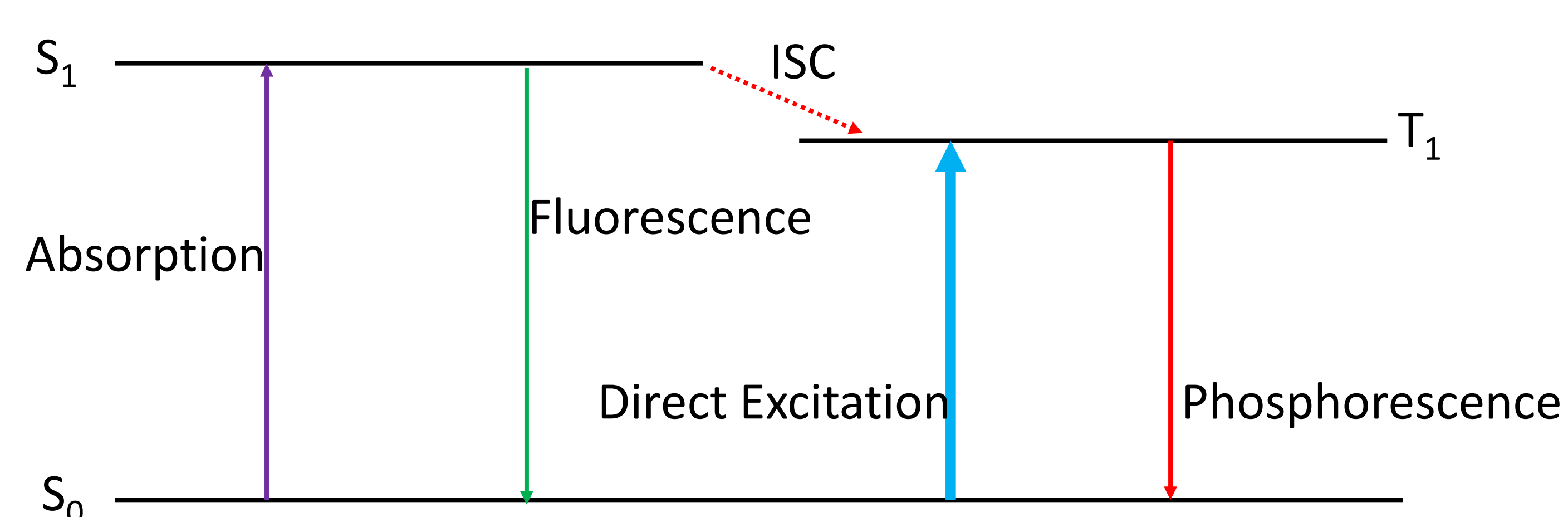
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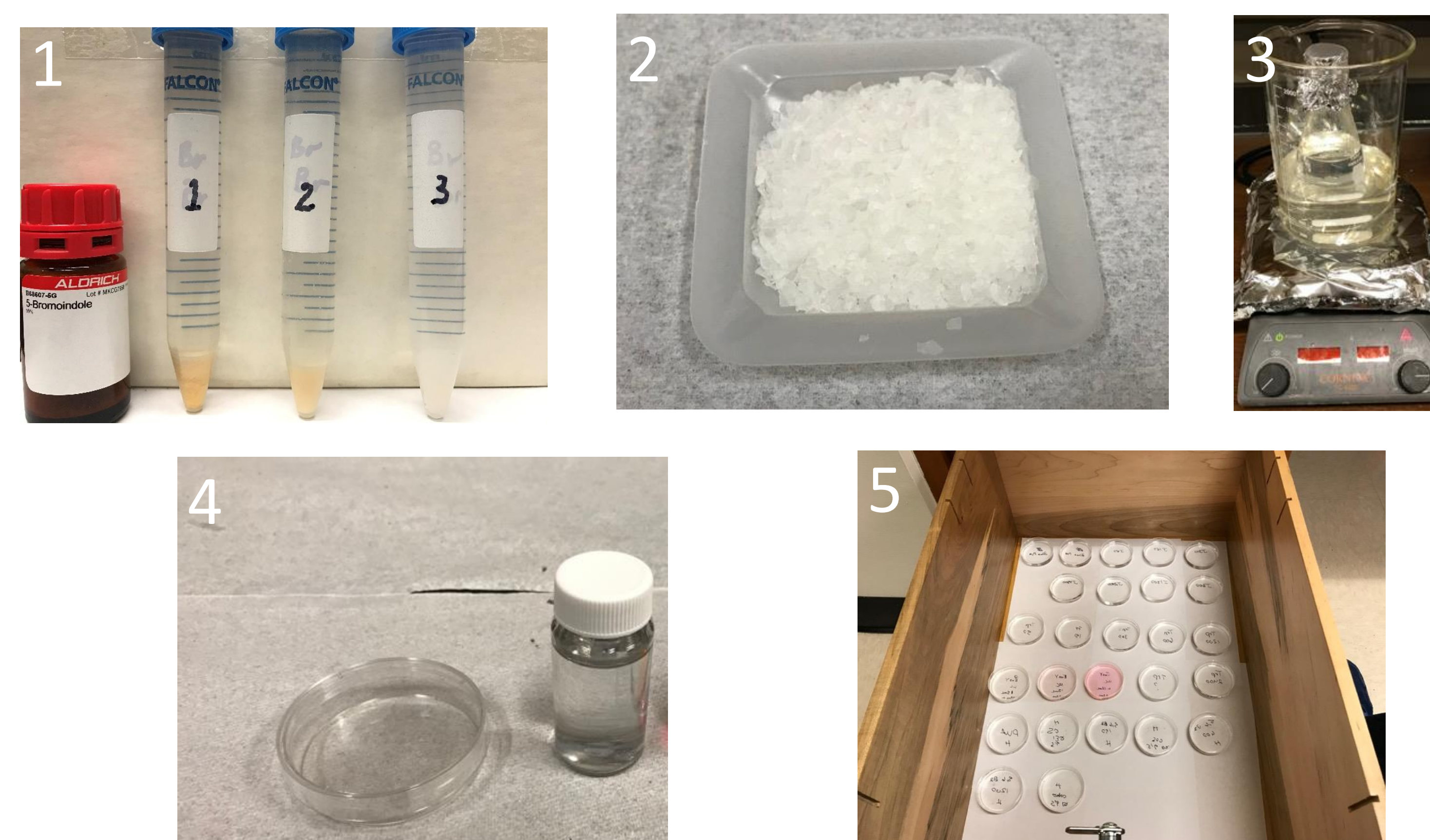
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Background

Tryptophan is one of the few amino acids which is intrinsically photoluminescent. Within this structure of tryptophan there is a ring structure called Indole. Studying Indole's photoluminescent properties (both fluorescence and phosphorescence) this can be a potential marker for monitoring slow protein interactions. Fluorescence lasts nanoseconds while phosphorescence lasts up to seconds. Traditionally phosphorescence is achieved when excited in the ultraviolet range. For biological samples this will increase background noise. This time there is a possibility in exciting straight into the phosphorescence state which can eliminate this noise. To further study this direct excitation to the phosphorescence state the Indole is embedded into poly (vinyl alcohol) PVA film. A Bromide ion is attached to the Indole structure which increases the probability of achieving phosphorescence.

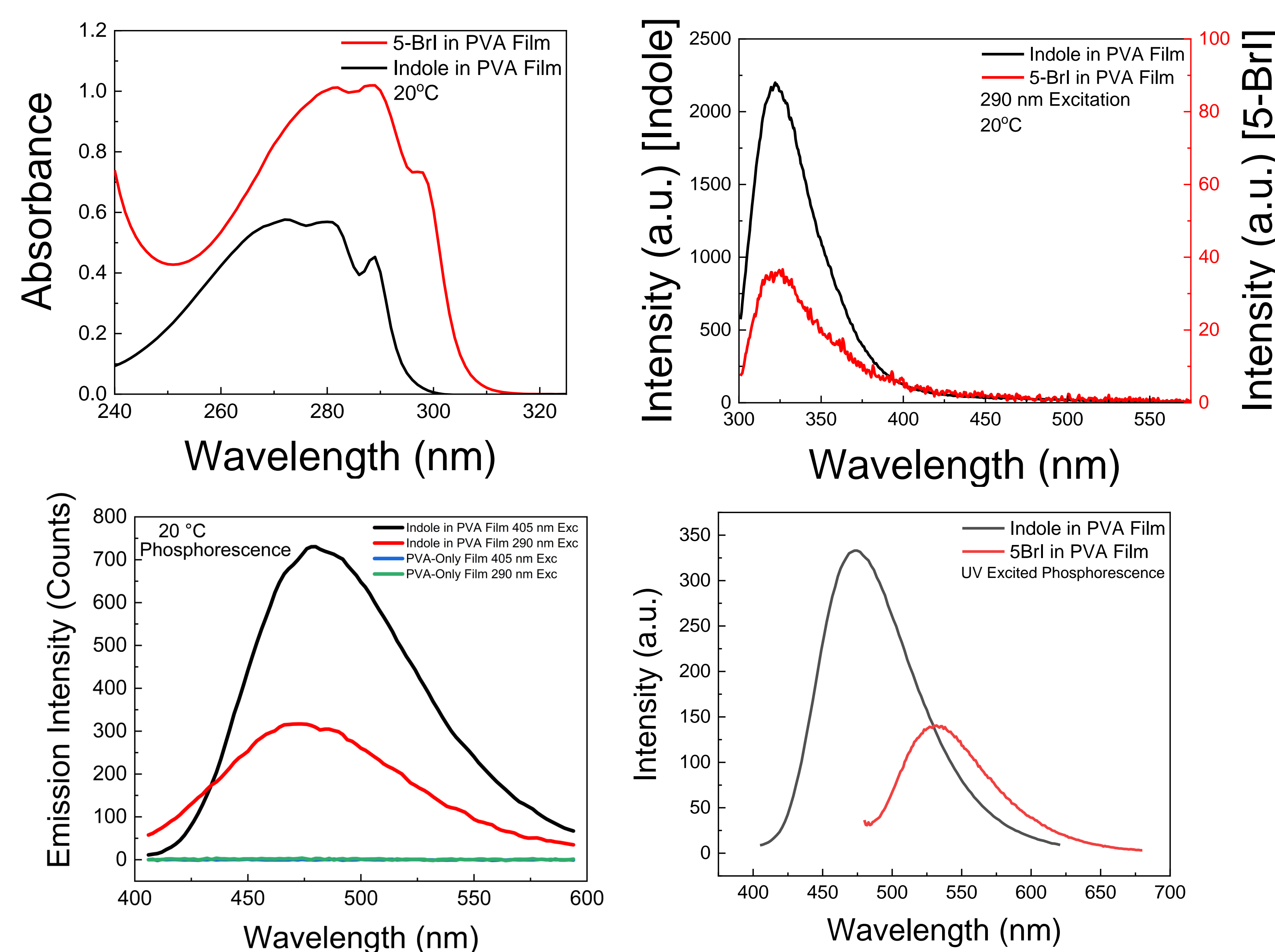


Methods & Materials



1. 5-Bromoindole in 50:50 methanol:water mix. This process is recrystallization to achieve high purity (tube labelled 3).
2. This is the PVA powder which will be polymerized.
3. Heating PVA (10%) in DI water where polymerization occurs.
4. Petri dish with PVA solution and 5-Bromoindole mixed.
5. Drying stage of 5-Bromoindole & various PVA embedded dyes in a cabinet up to a week.

Results



Conclusions

As we can see the Bromide ion is a quencher to fluorescence intensity. Even though fairly weak it still shows a large phosphorescence intensity. Further studies/heavy ions will be studied in the future to observe more of indole's phosphorescence. The direct excitation of indole's wavelength was 405 nm while 5-Bromoindole was 475 nm.

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