

## **A novel approach for the purification of biopharmaceuticals using polymer-based aqueous biphasic systems with ionic liquids as adjuvants**

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**Abstract:** Biopharmaceuticals are therapeutic drugs produced via biotechnological processes currently applied in the treatment of life-threatening diseases, representing a fast-growing area with an estimated market of \$100 billion in 2017. Among these is interferon alfa 2b (IFN $\alpha$ -2b), a protein with significant antiviral and immunomodulatory activities currently applied in the treatment of oncological diseases. Although significant advances at the upstream level have been faced, current purification strategies are unable to cope with high product concentrations in a cost-effective approach. In this work, it was developed a cost-effective technology for the purification of IFN $\alpha$ -2b from *Escherichia coli* BL21 cultures, using polymer-polymer based aqueous biphasic systems (ABS) with ionic liquids (ILs) as adjuvants. Enhancements up to 3.5 in IFN $\alpha$ 2b purification factors without affecting the IFN $\alpha$ 2b structure were achieved in presence of ILs.

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