

## Increased Production of Human Granulocyte Macrophage Colony Stimulating Factor (hGM-CSF) by the Addition of Alternative Carbon Source in Rice Suspension Cultures

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### Abstract

Granulocyte macrophage colony stimulation factor (GM-CSF) is a cytokine that stimulates the production of granulocytes, macrophages, and white blood cells. Production of recombinant hGM-CSF was studied in a rice cell secretory expression system. This expression system is inducible by sugar depletion, we have found that the productivity of hGM-CSF increased from 12.8 to 35.4 % compared with the control medium without carbon source, in medium containing an alternative carbon sources, such as succinic acid and pyruvic acid and malic acid and fumaric acid. Succinic acid was the most effective alternative carbon source for the production of hGM-CSF.

### References

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