# Manufacturing an Eminent Mucolytic Medicine Using a Newfound Synthesis Path

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## Abstract

N-acetyl-L-cysteine (NALC) is a well-known mucolytic agent and recently its efficacy has been examined for the prevention and remediation of several diseases such as lung infections caused by Coronavirus. Also, it is administrated as the main antidote in paracetamol overdose and is available as an antioxidant supplement.

In this study, a newfound method for the acylation of amino acids is employed to manufacture this drug on a lab scale. Regarding this patented path, NALC can be made in a single batch step at ambient pressure and temperature. Moreover, this study offers a new technique to make peptide bonds which is of interest for pharmaceutical and medicinal industries. The separation process was undertaken using appropriate solvents to achieve an excellent purification level. The synthesized drug was characterized via Proton Nuclear Magnetic Resonance (1H NMR), Fourier Transform Infrared Spectroscopy (FT-IR), Elemental analysis, and melting point analyses.

## Image

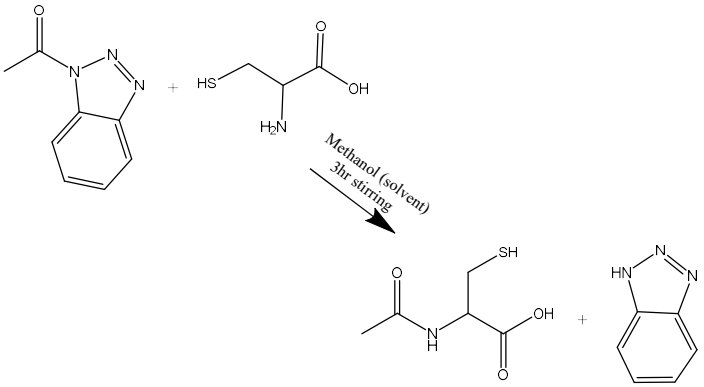



Figure 1. The synthesis route of N-acetylcysteine drug.

## Recent Publications

1. Shetty, R., Udupa, N., Mutalik, S., Kulkarni, V., Rao, V., 2019. Mechanisms and Therapeutics of N-acetylcysteine: A Recent Update. Res. J. Pharm. Technol.
2. Liu, Y., Wang, M., Luo, G., Qian, X., Wu, C., Zhang, Y., Chen, B., Leung, E.L.-H., Tang, Y., 2020. Experience of N-acetylcysteine airway management in the successful treatment of one case of critical condition with COVID-19: A case report. Medicine (Baltimore). 99, e22577–e22577.
3. Ibrahim, H., Perl, A., Smith, D., Lewis, T., Kon, Z., Goldenberg, R., Yarta, K., Staniloae, C., Williams, M., 2020. Therapeutic blockade of inflammation in severe COVID-19 infection with intravenous N-acetylcysteine. Clin. Immunol. 219, 108544.
4. Pashley, R.M., Taseidifar, M., 2020. Method for acylating amino acids and uses of N_acyl amino acid products. https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020168385
5. Shetty, R., Udupa, N., Mutalik, S., Kulkarni, V., Rao, V., 2019. Mechanisms and Therapeutics of N-acetylcysteine: A Recent Update. Res. J. Pharm. Technol.

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