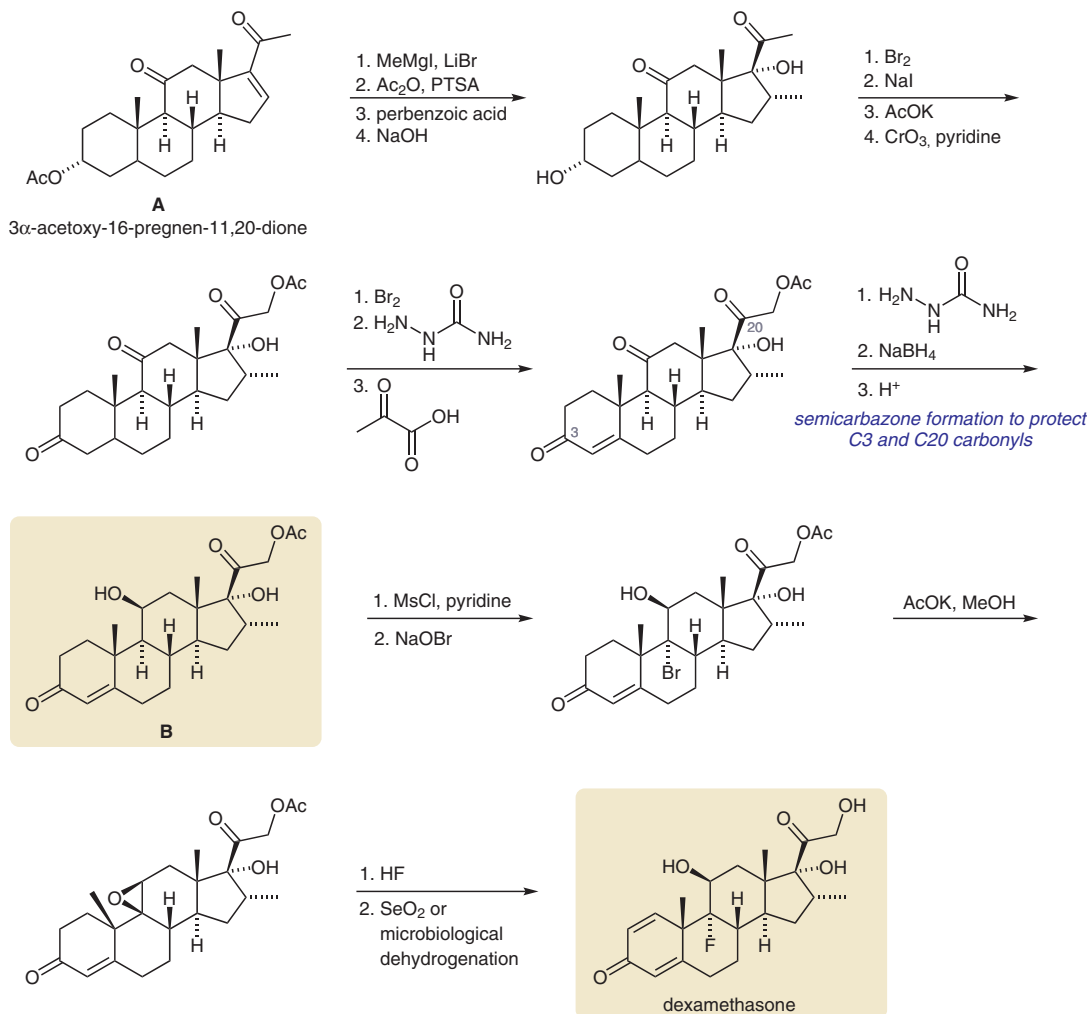


G. E. ARTH, J. FRIED, D. B. R. JOHNSTON, D. R. HOFF, L. H. SARETT, R. H. SILBER, H. C. STOERK, C. A. WINTER (FUNDAMENTAL RESEARCH MERCK SHARP & DOHME LABORATORIES DIVISION MERCK & CO., INC. RAHWAY, USA)
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J. Am. Chem. Soc. **1958**, *80*, 3161–3163.

Dexamethasone – A Corticosteroid Reduces Death in Severe COVID-19



Significance: Dexamethasone is an inexpensive and widely available corticosteroid, with powerful anti-inflammatory and immunosuppressant effects. It is used to treat diseases such as asthma, rheumatic disorders and several skin diseases. Recently, dexamethasone has been shown to significantly reduce the fatality in patients with severe COVID-19, becoming the first medicine to show a reduction in deaths in a large, randomized, controlled clinical trial (*medRxiv*, DOI: 10.1101/2020.06.22.20137273).

Comment: Dexamethasone was synthesized from **A** in a multistep sequence using classic steroid chemistry. The synthesis of intermediate **B** from **A** is described in a preceding publication (Arth et al. *J. Am. Chem. Soc.* **1958**, *80*, 3160). Dexamethasone was then obtained from **B** by elimination of water and bromohydrin formation, followed by epoxide formation. Opening of the epoxide with HF yielded the key fluorohydrin followed by dehydrogenation to yield dexamethasone.

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