On the basis of these studies the following conclusions are made:

1) Single oral doses of d-propoxyphene napsylate can produce morphine-like activity equal to 10 mg of morphine subcutaneously

2) d-Propoxyphene napsylate orally can suppress the signs and symptoms of abstinence in subjects dependent upon 60 mg of morphine per day administered subcutaneously

3) Abrupt withdrawal of chronically administered d-propoxyphene napsylate, 1200 mg orally/day, is associated with a morphine-like abstinence syndrome

4) Daily oral doses of d-propoxyphene napsylate, 1200 mg, would be equivalent in morphine-like activity to 20 mg of subcutaneously administered morphine daily. By extrapolation, this level of morphine-like activity would be equivalent to that of 10 mg of heroin parenterally or 10 mg of methadone orally.

Evaluation of Azidomorphine for Morphine-like Effects

Azidomorphine (Fig. 4), a morphine derivative, is 40 to 300 times more potent than morphine as an analgesic in man and animals but in equianalgesic doses is reported to be less toxic and to produce lesser degrees of physical dependence than morphine.[17,18,19]

The miotic and morphine-like subjective effects of azidomorphine as well as its ability to suppress abstinence was assessed.

Miosis and Subjective Effects

Seven, non-dependent subjects received the following drugs at weekly intervals: azidomorphine bitartrate, 0.35 mg, 0.70 mg, 1.40 mg and 1.80 mg; morphine sulfate 15 and 30 mg; and placebo (normal saline). All drugs were administered subcutaneously in random order under double-blind procedures. Drug effects were measured by changes in pupil size, measured photographically;[8] Subjects' and Observers' Single Dose Opiate Questionnaires;[9,10] and from the Morphine-Benzedrine Group Scale (MBG) of the Addiction Research Center Inventory.[11]

Control photographs were obtained at 0700 and 0730. Drugs were administered at 0800 subcutaneously under double blind conditions and at 0830, 0900, 1000, 1100, 1200 and 1300 pupil photographs were repeated and questionnaires were completed.