A Preliminary Report on the Reinforcing Effects of Racemic 3,4-methylenedioxyamphetamine in the Baboon from The Division of Behavioral Biology Department of Psychiatry and Behavioral Sciences The Johns Hopkins University School of Medicine

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The ability of various doses of racemic 3,4-
methylenedioxyamphetamine hydrochloride (MDMA) to maintain
drug self-administration when substituted for cocaine (0.32
mg/kg/inj of the hydrochloride) in the baboon (Papio anubis) was
examined using our standard intravenous drug self-injection
substitution procedure, which has been described in detail
previously (appended reprint: Griffiths, Brady and Bradford,
1979). MDMA was dissolved in saline, and the volume of injection
was 5 ml. A maximum of 8 injections per day was available to the
baboons.

As can be seen in the attached figure, the data obtained to
date shows that MDMA maintained levels of self-administration
above vehicle in all three baboons. These levels tended to be in
the range of those maintained by 1-MDA and below those maintained
by cocaine, d-amphetamine and phencyclidine in previous
experiments (appended reprints: Griffiths, et al 1979; Lukas, et
al 1984). It is interesting that, in one baboon, certain doses of
MDMA maintained levels of self-administration substantially below
vehicle levels. This finding is consistent with the observations
that drug self-injection procedures are not useful in predicting
LSD-like hallucinogenic drug effects (appended reprint:
Griffiths, et al 1979), and that MDMA has hallucinogenic
activity. Overall, our preliminary results indicate that MDMA
has moderate reinforcing efficacy.

As discussed elsewhere, the abuse liability of a compound is
a positive interactive function of 1. the reinforcing efficacy,
and 2. the adverse effects (appended reprint: Griffiths, et al
1985). If MDMA does indeed have hallucinogenic activity (a
significant adverse effect), then the moderate reinforcing
efficacy revealed in the present data would suggest that MDMA
should be considered to be a compound having high abuse
liability.
The points represent the mean of the last five days of the condition for each baboon, except for the cocaine points which represent the mean of the three days preceding drug substitution. Points above S are saline control points. Points above C are cocaine points.