



B02 Midazolam Stimulates Steroidogenesis in Mouse Leydig Cells and MA-10 tumor cells

1. Edmund Cheung So, 2. Ya-Ting Chang, 3. Paul Wai Fung Poon,
4. Bu-Min Huang, 5. Kar-Lok Wong

1. Department of Anesthesia, Chi-Mei Medical Center, Tainan, Taiwan. 2. Institute
of Basic Medical Sciences, National Cheng Kung University, Tainan, Taiwan

Aim of investigation: Midazolam is a common drug used clinically as sedative and anticonvulsion purpose. Endocrine response to anesthetic drugs had been reported as early as 1973 and we hypothesized in this study that Midazolam might regulate Leydig cell steroidogenesis.

Materials & Methods: Midazolam (6, 30, 150, 600 M) (1.5mg/ml, Roche) were added into primary mouse Leydig cells and MA-10 tumor cell culture (5~7 weeks old C57BL/6NCrj mice). MTT assay was used to measure cell viability. Western immunoblot analysis was used to quantify protein expression.

Results: Significant time (1hr Vs 4 hrs) and dose dependent (50 and 600M Midazolam) production of testosterone were found in primary mouse Leydig cells culture ($p < 0.001$). However, when cells were observed under 200X for one hour, cell lysis was seen in cultures(MA-10) receiving 600M Midazolam. Long term observation(1,3,6,12 & 24 hours) showed significant increase of testosterone production in cultures receiving 30 & 150M Midazolam when compared with control of the same time($p < 0.01$). Testosterone production was time dependent in study cultures receiving less than 300M Midazolam. Cell structures after 24 hours showed membrane blebbing in cultures receiving more than 300M Midazolam.

Conclusions Midazolam can stimulate steroidogenesis in a dose and time dependent way in mouse Leydig and MA-10 tumor cells.