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The role of oocyte maturation inhibitor in follicular regulation of oocyte maturation

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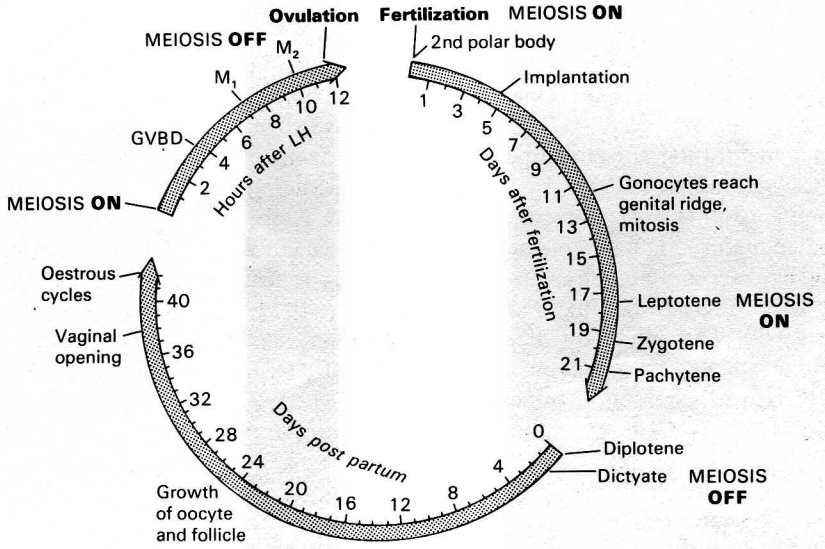
Meiotic maturation of mammalian oocytes is a protracted process, subject to multiple stop-go controls (Text-fig. 1). The meiotic process is initiated during fetal life and is arrested shortly after birth at the stage of diplotene. Normally meiosis is resumed in adult life following the preovulatory surge of gonadotrophins (Ayalon, Tsafriri, Lindner, Cordova & Harell, 1972; Vermeiden & Zeilmaker, 1974; Tsafriri *et al.*, 1976a; Dekel, Hillensjö & Kraicer, 1979). Preovulatory resumption of meiosis includes the breakdown of the germinal vesicle (GVB), expulsion of the first polar body and the progress to the metaphase of the second meiotic division. Nevertheless, since GVB is the first change occurring and is widely used as an endpoint for assessing the resumption of meiosis, we shall refer to GVB as 'resumption of meiosis' or as 'oocyte maturation'.



Text-fig. 1. Schematic presentation of multiple stop–go controls of oogenesis in the rat. (From Lindner, Bar-Ami & Tsafriri, 1980.)

Follicular control of oocyte maturation

Resumption of meiosis in preovulatory follicles is dependent upon the preovulatory surge of gonadotrophins; abrogation of this surge prevents ovulatory changes, including maturation of the oocyte (Ayalon *et al.*, 1972; Vermeiden & Zeilmaker, 1974; Tsafriri *et al.*, 1976a; Dekel *et al.*, 1979). Similarly, in explanted follicle-enclosed oocytes the resumption of meiosis is

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