

妊娠カニクイザル血清中のヒト胎盤ラクトゲン(HPL)様物質 について

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BRIEF NOTE

Human Placental Lactogen-Like Substance in the Serum of Pregnant Cynomolgus Monkeys

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Biochemical and immunological studies on monkey placental lactogen (MPL) (also designated monkey choriomammotropin) have been conducted by Kaplan [5], Josimovich [4], Friesen [2], Grant [3], Shome [8] and Vinik [9]. A cross reaction between MPL and human placental lactogen (HPL) has also been reported [8, 9]. So it is convenient for investigating the placental function of the monkey that an HPL-like substance is detected easily with a commercial reagent for detection of HPL (Gestefollow-Eiken, Eiken Kagaku Co., Tokyo).

This report deals with the detection of an HPL-like substance in the serum of the pregnant cynomolgus monkey (*Macaca fascicularis*) and other animals with this reagent. Tests of serum were carried out by the method prescribed for Gestefollow Eiken.

Blood samples were collected from pregnant and non-pregnant women at the Jichi Medical School Hospital and from pregnant and non-pregnant experimental animals (cynomolgus monkeys, cows, pigs, horses, dogs, cats, rabbits and guinea pigs)

at the Jichi Medical School, Tsukuba University and Tokyo University of Agriculture. Sera were separated from them by centrifugation and used for the test with Gestefollow Eiken.

Three to six $\mu\text{g/ml}$ of HPL-like substance was detected from the serum in cynomolgus monkeys at 145-162 days of gestation (Table 1). Each human and simian pregnant serum reacted with anti-HPL serum in the double diffusion test (Fig. 1A). Neither of them, however, reacted with anti-HPL serum which had previously absorbed simian pregnant serum (Fig. 1B). After absorbed with human pregnant serum (containing 8 $\mu\text{g/ml}$ of HPL) or simian pregnant serum (containing 6 $\mu\text{g/ml}$ of HPL-like substance), anti-HPL serum showed a negative reaction with both human and simian pregnant sera (Fig. 1). These results indicate that the same antigenic as contained in HPL is secreted in the serum of the pregnant cynomolgus monkey. No HPL-like substance, however, was detected from the serum of any non-pregnant cynomolgus monkey. Three serum samples were col-

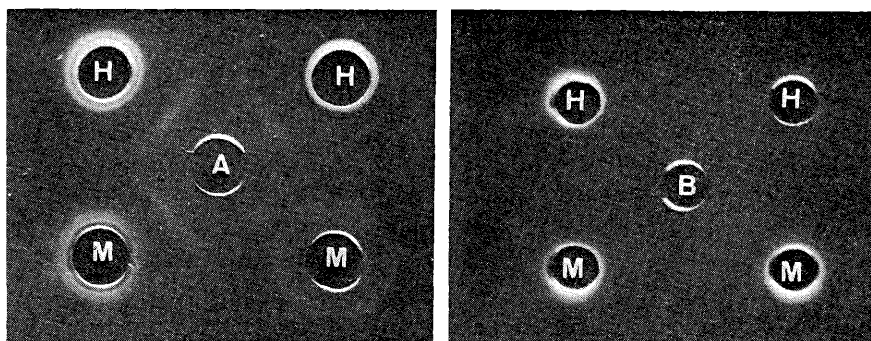


Fig. 1. Precipitin reaction of pregnant-woman and pregnant-cynomolgus monkey sera with anti-HPL serum

A: anti-HPL serum

B: anti-HPL serum absorbed by pregnant-cynomolgus monkey serum

H: Pregnant-woman serum ($8 \mu\text{g}$ of HPL/ml)

M: pregnant-cynomolgus monkey serum ($6 \mu\text{g}$ of HPL-like substance/ml)

Table 1. Detection of HPL-like substance in sera of pregnant and non-pregnant cynomolgus monkeys (*Macaca fascicularis*) by Gestefollow Eiken

Monkey No.	Days of gestation	Reaction
pregnant	1	Positive ($6 \mu\text{g}/\text{ml}$)
	2	Positive ($5 \mu\text{g}/\text{ml}$)
	3	Positive ($3 \mu\text{g}/\text{ml}$)
	4	Positive ($5 \mu\text{g}/\text{ml}$)
	5	Positive ($4 \mu\text{g}/\text{ml}$)
non-pregnant	1	Negative
	2	Negative
	3	Negative
	4	Negative
	5	Negative

Table 2. Detection of HPL-like substance in serum of pregnant and non-pregnant animals and human beings with Gestefollow Eiken

Sample	Reaction	
Cows	Negative	
Mares	Negative	
Pregnant	Sows	Negative
	Bitches	Negative
non-pregnant	Cats	Negative
	Rabbits	Negative
	Guinea pigs	Negative
Pregnant women (37 weeks of gestation)	Positive ($8 \mu\text{g}/\text{ml}$)	
non-pregnant women	Negative	
Men	Negative	

lected from each of pregnant cow, mare, sow, bitch, cat, rabbit and guinea pig. All of them gave a negative reaction with Gestefollow Eiken. All the three serum samples collected from non-pregnant animals of each of the species mentioned above gave also a negative reaction (Tables 1 and 2).

HPL is a polypeptide hormone similar to the growth hormone, consisting of 19 amino acid residues, and has a molecular weight of about 21,600 daltons [1, 6]. As much of it is secreted by the placenta in the late stage of pregnancy, it indicates the placental function and is used as a parameter of fetal care [7]. An HPL-like substance was detected from the serum of the pregnant cynomolgus monkey by applying a reagent originally used for HPL detection from the serum of several kinds of animals. No other monkeys than the cynomolgus one were investigated. The results obtained suggested, however, that the HPL-like substance might be detected from the serum of some other species of monkeys other than the cynomolgus one with the reagent of Gestefollow Eiken for the detection of HPL. It is assumed that this kit agent may be useful for the study of the

placental function of the pregnant monkey.

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要 約

妊娠カニクイザル血清中のヒト胎盤ラクトゲン (HPL) 様物質について (短報): 池本卯典^{1,2)}・三宅文太郎¹⁾・吉田治弘¹⁾・桜井幸男¹⁾・勝連統一郎³⁾ (1)自治医科大学人間生物学研究室. 法医学教室, 2)東京農業大学総合研究所, 3)大阪府警察本部科学捜査研究所)——Gestefollow-Eiken を使用して妊娠動物血清中の共通物質を検索した結果, 妊娠ウシ・ウマ・ブタ・イヌ・ネコ・ウサギ・モルモット血清中には HPL 類似物質は認められなかった. しかし, 妊娠 142-162 日のカニクイザル血清からは 3-6 $\mu\text{g}/\text{ml}$ の HPL 様物質が検出され, HPL 検出用試薬をサル類の胎盤ラクトゲン検出に利用し得る可能性が示唆された.