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**A MATHEMATICAL SKEW-LOGISTIC MODEL FOR CIRCADIAN
GENE EXPRESSION REGULATES PULSATILE
GONADOTROPIN-RELEASING HORMONE (GNRH)
SECRETORY PATTERNS IN THE HYPOTHALAMIC
GNRH-SECRETING GT1-7 CELL LINE**

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Abstract: In this paper we introduce the skew logistic distribution. It is observed that the probability density function of the skew logistic distribution is always unimodal. The main idea is to introduce the skewness parameter, so that the generalized logistic distribution can be used to model data exhibiting a unimodal density function having some skewness present in the data, a feature which is very common in practice. We used the GT1-7 mouse hypothalamic cell line as a model for GnRH secretion, because these cells release GnRH in a pulsatile pattern similar to that observed in vivo. This effect persists in normal light/dark (LD) cycles, suggesting that a suprachiasmatic nucleus-independent endogenous clock in GnRH neurons is required for eliciting normal pulsatile patterns of GnRH secretion. Finally we conclude that the application part overlaps with a mathematical model. In future, this paper will be advantageous in the medical field.

Keywords and Phrases: Skew logistic distribution, circadian, GnRH, secretion, Clock, GT1-7.

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