

### البحث الثامن

Mohamed I. Nassar, Badawi ,Y. K., Doaa S. Abd El-Hadi, Shima M. Ali and <b>Abd El-Alim M. Abd El-Mola (2024). Molecular characterization of growth differentiation factor 9 (gdf9) gene related to fecundity in Egyptian Baladi Goat breed. <i>Egyptian Journal of Sheep &amp; Goat Sciences (Acceptance)</i></b>	البحث الثامن
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<b>Title</b>	Molecular characterization of growth differentiation factor 9 (gdf9) gene related to fecundity in Egyptian Baladi Goat breed.
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### ABSTRACT

Growth differentiation factor 9 (GDF9) gene (exon 1) is the subject of this study's investigation into polymorphisms in relation to fertility in Egyptian Baladi goat. Methods from seventy does were used, blood samples were taken, and genomic DNA was extracted. Using particular primers, a 770 bp region of the GDF9 gene was amplified; the amplified products were subjected to sequence and examined to determine the phylogenetic position of the Egyptian goat breed. In addition, polymorphisms were covered by the PCR-RFLP technique using the Msp1 restriction enzyme of the GDF9 gene to confirm twinning molecular markers. The sequence of GDF9 gene of Baladi goats was compared with ten Capra hircus accession numbers found in GenBank. Nucleotide sequences of GDF9 gene were used in molecular phylogenetic analysis to determine the similarity between the Egyptian Baladi goat breed and other sequences from breeds of Capra hircus registered in the GenBank. The results of sequence comparison indicated that the Baladi goat is closely related to the breed of accession number KY780296. The Msp1 enzyme successfully digested GDF9 gene which consists of one band to three bands of approximately 770, 470 and 300 bp, for does producing twins and one band of approximately 770 bp for does generating single kid. Conclusion: Knowledge of the mutation in the GDF9 gene (exon 1) early on can be used to create a flock that specializes in producing twins without waiting for maturity and thus reducing production costs and increasing profitability.