



## KEY WORDS

- ✓ Polymorphism,
- ✓ growth,
- ✓ reproduction,
- ✓ Saanen,
- ✓ *POU1F1*,

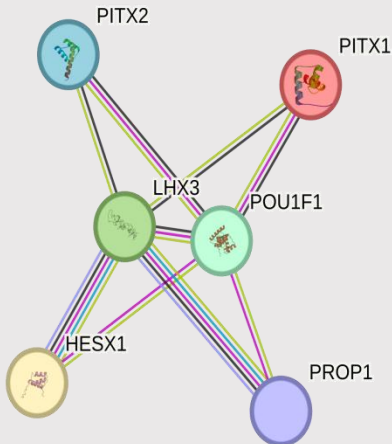
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## DETERMINATION OF RELATIONSHIP OF THE GENE POLYMORPHISMS IN THE *POU1F1* GENE PATHWAY WITH GROWTH AND REPRODUCTIVE TRAITS IN SAANEN GOATS

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## THESIS ABSTRACT

Goat breeding is preferred for productivity traits such as milk, meat, leather and hair production. Still, it is not easy to achieve significant genetic progress in improving these traits using traditional breeding methods. Growth and reproduction traits are functional traits that have substantial economic impacts in sustainable goat breeding programs and goat genetics, as well as profitability in production. However, growth and reproduction traits are controlled by multiple genes, which is very important to unravel the relationship between genetic variations. Therefore; in this thesis study, it was aimed to determine the frequencies of *PITX1* (c.490G>A), *PITX2* (g.18353>C), *LHX3* (g.8035T>C), *PROP1* (c.236C>T) and *POU1F1* (c.837T>C and c.771+215C>T) polymorphisms in Saanen female goats and to reveal the relationship of these polymorphisms with growth and reproduction traits. A total of 150 Saanen goats were genotyped in the study. The relationship was investigated between birth weight, litter size, average daily weight gain, total weight gain, first breeding weight, body length, chest girth, rump width, rump height, withers height, head length, ear length and forehead width with growth and reproduction traits. It was determined that *LHX3* (g.8035T>C) polymorphism was associated with the litter size ( $P<0.05$ ), while *PITX1* (c.490G>A) polymorphism tended to affect birth weight ( $P<0.1$ ). The results obtained were determined for the first time in this thesis study. It was concluded that the polymorphisms whose effects were determined in this study could be used to improve growth and reproduction characteristics in goat breeding, but repeating the relevant results in larger populations is very important for the reliability of the thesis results.

## APPLICATION AREAS OF THE THESIS RESULTS

- Animal Husbandry
- Genomic Selection Applications

## ACADEMIC ACTIVITIES

### SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

**Sentürk, N., Selvi, T. N., Demir, M., Ustuner, H., Samli, H., and Ardicli, S.:** The impact of *LEP* gene polymorphisms located at exon 2 (*LEP-HinfI*) and intron 2 (*LEP-Sau3AI*) on growth and reproductive traits in Saanen goats, *Arch. Anim. Breed.*, 67, 523–531. <https://doi.org/10.5194/aab-67-523-2024>, 2024.

### Desteklenen Projeler

BAP Destekli Proje - Saanen Irkı Keçilerde, *POU1F1* Gen Yolağında Bulunan Genlere Ait Polimorfizmlerin Büyüme ve Üreme Özellikleri ile İlişkinin Belirlenmesi - Hale ŞAMLI, Hakan ÜSTÜNER, Sena ARDIÇLI, Tuğçe Necla SELVİ, **Nursen ŞENTÜRK.**

### Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

**Şentürk, N., Selvi, T. N., Üstüner, H., & Ardicli, S.,** (2023). Exploration of Variation in Leptin Gene Polymorphisms Situated in Exon 2 and Intron 2 of Saanen Goats. 14th International Medicine and Health Sciences Researches Congress (pp.378-379). Ankara, Turkey.