**Sequencing of Scrapie Related PRNP Gene in Ethiopian Native Sheep**

**Running title-Prion Gene Polymorphism in Ethiopian Sheep**

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**Abstract**

Over the past several decades, prion gene (*PRNP*) has being one of the critical genes in sheep wellbeing and production. Efforts are being made to genetically characterize local breeds in determining resistance/susceptible haplotypes across the globe. However, such works have never addressed developing countries such as Ethiopia where livestock is the main economic source. The present study aimed to provide a set of data on the scrapie related alleles' polymorphisms in the coding region of *PRNP* and infer the finding to determine scrapie status of the country. Accordingly, neither ARR/ARR, the highly resistant, nor VRQ/VRQ, the least resistant, haplotypes were identified in both breeds. The supposedly wild type, ARQ, was predominant in Washera and Menz breeds. The next widely distributed haplotype in the two breeds was ARH. Together with that, Q101R, G127V M137I, M137I, N146S and R231R additional alleles were detected. Moreover, 6 novel alleles i.e. H99L, A116E, G117E, G126A, G127V and I142T at known and newly identified loci were identified. Based on the current study, it is possible to conclude that Ethiopian native sheep breeds have never been infected with scrapie.

Key words: Menz, Polymorphism, Prion gene, Scrapie susceptibility, Washera