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**DEVELOPMENTS AND USE OF MOLECULAR TECHNIQUES FOR PLANT VARIETY PROTECTION IN
THE REPUBLIC OF KOREA***Document prepared by an expert from the Republic of Korea**Disclaimer: this document does not represent UPOV policies or guidance*

1. Since the launch of the plant protection system in 1998, the Korea Seed and Variety Service (KSVS) has been striving to improve the reliability in establishing Breeder's Rights. Also, many efforts have been made to raise the protection level of the registered rights for domestic and foreign varieties. The most technically effective means at this point is known as molecular marker technology. As a result of efforts to develop molecular markers for effective implementation of the PVP system, KSVS has constructed and used a molecular marker database for more than 5,000 varieties of 30 crops, including most major food and vegetable crops. And some of the results have been transferred to private companies.
2. Currently, the molecular marker technology in KSVS has reached the universal utilization level not only for PVP, but also for seed management such as quality control of government certified seeds and establishment of seed market order. The SSR molecular marker occupies the mainstream of the molecular marker database currently used. SSR molecular markers are highly stable and highly polymorphic and reproducible, contributing to the search of similar varieties in DUS testing and the settlement of rights infringement disputes. Furthermore, these achievements expanded the scope of molecular marker technology throughout the seed management business.
3. However, recently, as the molecular technology became more popular and application varieties expanded, the limits of the existing SSR technology are being highlighted in cost and time. The KSVS is pursuing the development of single-nucleotide polymorphism (SNP) as a next-generation gene identification technology development project. In the future, the KSVS will replace the existing SSR with the SNP, focusing on the major vegetable crops with high demand for the technology, so as to develop molecular markers that are highly correlated with the morphological characteristics presented. Through this, we intend to pursue the ideal molecular marker technology environment suitable for Option I, II, and III proposed by UPOV.

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