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## NATIVE VERSUS SYNTHETIC PAPILLOMAVIRUS PARTICLES

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**Background:** Many laboratories have developed numerous and variable systems for the creation of synthetic papillomavirus particles. These include virus-like particles (VLP), self-assembled particle made from the L1 capsid protein alone or from the L1 and L2 capsid proteins; pseudoviruses, particles (L1 alone or L1 and L2) that self-assemble around DNA that is present in the system used; and quasiviruses created in a 293T cell culture system that can incorporate any DNA that is present in the 293T cells during assembly of the capsid proteins.

**Material and Methods:** The particles made in these various systems have been used for numerous studies including: structural, assembly, encapsidation, infection, and antigenic. The two HPV human vaccines are composed of VLPs. Very few studies have been conducted comparing results of studies using synthetically created particles with native viral particles.

**Results and Conclusion:** Previously, the lack of sufficient materials hindered these studies but in our system we are able to produce greater than a billion native particles from a single raft culture al-

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lowing us to pursue the comparison of native viral particles with synthetic particles and we will present the results from these studies. Our studies have included investigating structural and integrity differences using physical, biochemical, and genetic approaches, which while showing some similarities, have also shown several differences in the character of native particles compared to synthetic particles. Surprisingly, we have found that native particles and synthetic particles also differ in their antigenicity as measured by the ability of conformation-dependent antibodies to neutralize viral infection.