LGM INTERNATIONAL, INC. LIQUI-PREP™: VALADATION OF DIGENE'S HYBRID CAPTURE® 2 HPV DNA TEST

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ABSTRACT

Objective:

The objective of this trial is to demonstrate the performance characteristics of the Hybrid Capture® 2 (HC 2} HPV DNA test (Digene Corporation, Gaithersburg, MD, USA) on cervical cells collected with the Cervex-Brush™ (Rovers, Oss, The Netherlands) and preserved in **Liqui-PREP™** alcohol based preservative solution.

The study will compare the results HPV DNA testing obtained from two cervical specimens collected from the same patients.

Methods:

The first specimen will be obtained with the Cervex-Brush™ and immersed in **Liquid-PREP™ Preservative Solution**. The second sample will be collected using the Digene Cervical Brush and Specimen Transport Medium (STM). Both specimens will be tested for high-risk HPV types. In addition, **Liqui-PREP™** cytology preparations will be processed from the **Liqui-PREP™ Preservative Solution**, examined and scored using the Bethesda System. The study will recruit patients selected from a routine screening population based on predetermined diagnoses.

Results:

The results of these feasibility studies carried out on retrospective samples from healthy donors and patients with abnormal Pap smears, demonstrate that samples collected in **Liqui-PREP™ Preservative Solution** are compatible with the technical performance of HC2 HPV DNA Hybrid Capture® technology.

Conclusions:

In this, on going study, HPV DNA test results will be compared for equivalence. Discordant results will be retested in duplicate and in some cases analyzed with PCR (Access Genetics, Minneapolis, MN, USA). The final results of this trial will be reported in conjugation with corresponding **Liqui-PREP™** cytology.

INTRODUCTION:

There are over 100 genetically diverse types of human papillomavirus (HPV), which are responsible for a variety of disease manifestations. Of these, at least 9 oncogenic (high-risk) types have been associated with cervical cancer[1]. It is estimated that more than 90% of cervical cancers are attributed to high-risk HPV infection[2]. In addition, about 40% of patients with Atypical Squamous Cells (ASC) have been shown to be positive for oncogenic HPV DNA[3]. The detection of high-risk HPV in patients with an ASC PAP smear can assist triage[4]. The recent advent of liquid-based cytology allows this testing to be reflexed directly from the residual cervical specimen in the collection vial.

OBJECTIVE:

To compare the performance characteristics of the Digene's (HC 2) assay for the detection of HPV DNA from cervical samples collected in **Liqui-PREP™ Preservative Solution** to subsequent cervical samples collected in Digene's Specimen Transport Media® (STM).

METHODS:

This study was carried out at the Institute of Pathology, Geneva, Switzerland (2003). Patients were recruited based on the results of Pap tests (SurePath™, TriPath Imaging, Inc., Burlington, NC). Four groups of 10 patients each with the following cytological diagnoses were enrolled in the study:

WNL*
ASC-US
LISIL
HSIL

*Patients with a previous history of CIN

The patients selected underwent subsequent (6 week interval) co-collection of paired cervical samples for **Liqui-PREP™** and HPV DNA testing. In each case, the **Liqui-PREP™** test specimen was collected first using the Rover's Cervex-Brush™. This was followed by direct cervical sampling for HPV testing using a cone-shaped brush device (Digene Cervical Sampler®) and STM preservative. After cytology testing, the residual cervical specimen in **Liqui-PREP™ Preservative Solution** and the STM sample were tested for oncogenic HPV types with the Digene's HC 2 assay.

TABLE I
Comparison of Detection Rates of Oncogenic HPV Types in Cervical Specimens Collected in LGM and Digene Preservatives

Cytological Diagnosis	Number of Patients	Rate of HPV DNA in Liqui-PREP™ Samples	Rate of HPV DNA In Digene's in STM Samples
WNL*	10	4	4
ASC-US	10	4	4
LSIL	10	8	8
HSIL	10	10	10
Total	40	26	26

* Patients with a previous history of CIN

RESULTS:

Oncogenic HPV DNA was detected in 65% (26/40) of patients in the two paired specimens. The HPV detection rate between **Liqui-PREP™** and STM matched specimens was the same. Table I summarizes the results. In spite of a collection interval, the cytological diagnoses of SurPath™ and **Liqui-PREP™** also matched.

CONCLUSIONS:

Use of the residual cervical specimen from the **Liqui-PREP™ Preservative Solution** is suitable for Digene's Hybrid Capture® 2 HPV technology and the results are equivalent those obtained from a separate, concurrent direct sampling using Digene's recommended protocol.

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