LIMING BIO

HPV 16/18 Antigen Rapid Test Device

REF 500140	**Specimen:** Swab
Language: English	**Version:** 01
Effective Date: 2010-07	

For professional *in vitro* diagnostic use only.

INTENDED USE

The *StrongStep*® HPV 16/18 Antigen Rapid Test Device is a rapid visual immunoassay for the qualitative presumptive detection of *HPV 16/18 E6&E7 oncoproteins* in female cervical swab specimens. This kit is intended to be used as an aid in the diagnosis of Cervical Pre-cancer and Cancer.

INTRODUCTION

In developing countries, cervical cancer is a leading cause of cancer related death of women, due to the lack of implementation of screening tests for cervical pre-cancer and cancer. A screening test for low resource settings should be simple, rapid, and cost effective. Ideally, such a test would be informative regarding HPV oncogenic activity.
Expression of both HPV E6 and E7 oncoproteins is essential for cervical cell transformation to occur. Some research results demonstrated a correlation of E6 &E7 oncoprotein positivity with both severity of cervical histopathology and risk for progression. Hence, E6&E7 oncoprotein promises to be an appropriate biomarker of HPV-mediated oncogenic activity.

PRINCIPLE

The *StrongStep*® HPV 16/18 Antigen Rapid Test Device has been designed to detect *HPV 16/18 E6&E7 Oncoproteins* through visual interpretation of color development in the internal strip. The membrane was immobilized with monoclonal anti-HPV 16/18 E6&E7 antibodies on the test region. During the test, the specimen is allowed to react with colored monoclonal anti-HPV 16/18 E6&E7 antibodies colored particals conjugates, which were precoated on the sample pad of the test. The mixture then moves on the membrane by capillary action, and interact with reagents on the membrane. If there were enough HPV 16/18 E6&E7 oncoproteins in specimens, a colored band will form at the test region of the membrane. Presence of this colored band indicates a positive result, while its absence indicates a negative result. Appearance of a colored band at the control region serves as a procedural control. This indicates that proper volume of specimen has been added and membrane wicking has occurred.

KIT COMPONENTS

20 Individually packed test devices	Each device contains a strip with colored conjugates and reactive reagents pre-spreaded at the corresponding regions.
2 bottles of Extraction Buffer - 10ml	Buffer solution containing PBS.
20 Extraction tubes	For specimens preparation use.
2 Workstation	Place for holding buffer vials and tubes.
1 Package insert	For operation instruction.
1 Positive control swab (on request only)	Contain inactived HPV infected Caski Cell and sodium azide. For External control.
1 Negative control swab (on request only)	Do not contain HPV infected Caski Cell. For external control.

MATERIALS REQUIRED BUT NOT PROVIDED

Timer	For timing use.

PRECAUTIONS

- For professional *in vitro* diagnostic use only.
- Do not use after expiration date indicated on the package. Do not use the test if its foil pouch is damaged. Do not reuse tests.
- This kit contains products of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not totally guarantee the absence of transmissible pathogenic agents. It is therefore, recommended that these products be treated as potentially infectious, and handled observing the usual safety precautions (do not ingest or inhale).
- Avoid cross-contamination of specimens by using a new specimen collection container for each specimen obtained.
- Read the entire procedure carefully prior to performing any tests.
- Do not eat, drink or smoke in the area where the specimens and kits are handled. Handle all specimens as if they contain infectious agents. Observe established precautions against microbiological hazards throughout the procedure and follow the standard procedures for proper disposal of specimens. Wear protective clothing such as laboratory coats, disposable gloves and eye protection when specimens are assayed.
- Do not interchange or mix reagents from different lots. Do not mix solution bottle caps.
- Humidity and temperature can adversely affect results.
- When the assay procedure is completed, dispose the swabs carefully after autoclaving them at 121°C for at least 20 minutes. Alternatively, they can be treated with 0.5% sodium hypochloride (or house-hold bleach) for one hour before disposal. The used testing materials should be discarded in accordance with local, state and/or federal regulations.
- Do not use cytology brushes with pregnant patients.

STORAGE AND STABILITY

- The kit should be stored at 2-30°C until the expiry date printed on the sealed pouch.
- The test must remain in the sealed pouch until use.
- **Do not freeze.**
- Cares should be taken to protect components in this kit from contamination. Do not use if there is evidence of microbial contamination or precipitation. Biological contamination of dispensing equipments, containers or reagents can lead to false results.

SPECIMEN COLLECTION AND STORAGE

- The quality of specimen obtained is of extreme importance. As much as cervical epithelial cell should be collected by the swab.

For cervical specimens:

- Use only Dacron or Rayon tipped sterile swabs with plastic shafts. It is recommend to use the swab supplied by the kits manufacturer(The swab are not contained in this kit, for the ordering information, please contact the manufacture or local distributor, the cataloge number is 207000). Swabs from other suppliers have not been validated. Swabs with cotton tips or wooden shafts are not recommended.
- Before specimen collection, remove excess mucus from the endocervical area with a separate swab or cotton ball and discard. Insert the swab into the cervix until only the bottommost fibers are exposed. Firmly rotate the swab for 15-20 seconds in one direction. Pull the swab out carefully!.
- Do not place the swab in any transport device containing medium since transport medium interferes with the assay and viability of the organisms is not required for the assay. Put the swab to the extraction tube, if the test may be run immediately. If immediate testing is not possible, the patient samples should be placed in a dry transport tube for storage or transport. The swabs may be stored for 24 hours at room temperature (15-30°C) or 1 week at 4°C or no more than 6 month at -20°C. All specimens should be allowed to reach a room temperature of 15-30°C before testing.

PROCEDURE

Bring tests, specimens, buffer and/or controls to room temperature (15-30°C) before use.

1. **Prepare swab specimens:**
   - Place a clean extraction tube in the designated area of the workstation. Add 15 drops of Extraction buffer to the extraction tube.
   - Immerse the patients swab into the Extraction tube and extract 2 minutes at room temperature. During extraction, use a circular motion to roll the swab against the side of the extraction tube so that the liquid is expressed from the swab and can reabsorb. Discard the swab following guidelines for handling infectious agents.
   - The specimens extracted can retain at room temperature for 30 minutes without affecting the result of the test.
2. Remove the test from its sealed pouch, and place it on a clean, level surface. Label the device with patient or control identification. To obtain a best result, the assay should be performed within one hour.
3. Add 3 drops (approximately 100 µl) of extracted sample from the Extraction Tube to the sample well on the test cassette.
   Avoid trapping air bubbles in the specimen well (S), and do not drop any solution in observation window.
   As the test begins to work, you will see color move across the membrane.
4. Wait for the colored band(s) to appear. The result should be read at 15 minutes. Do not interpret the result after 20 minutes.

INTERPRETATION OF RESULTS

POSITIVE RESULT: 	Two colored bands appear on the membrane. One band appears in the control region (C) and another band appears in the test region (T).

NEGATIVE RESULT: 	Only one colored band appears in the control region (C). No apparent colored band appears in the test region (T).
INVALID RESULT: 	Control band fails to appear. Results from any test which has not produced a control band at the specified reading time must be discarded. Please review the procedure and repeat with a new test. If the problem persists, discontinue using the kit immediately and contact your local distributor.

NOTE:

1. The intensity of the color in test region (T) may vary depending on the concentration of aimed substances present in the specimen. But the substances level can not be determined by this qualitative test.
2. Insufficient specimen volume, incorrect operation procedure, or performing expired tests are the most likely reasons for control band failure.

QUALITY CONTROL

- Internal procedural controls are included in the test. A colored band appearing in the control region (C) is considered an internal positive procedural control. It confirms sufficient specimen volume and correct procedural technique.
- External procedural controls are provided in the kits to ensure that the test are functioning properly. Also, the Controls may be used to demonstrate proper performance by the test operator. To perform a positive or negative control test, complete the steps in the Test Procedure section treating the control swab in the same manner as a specimen swab.

LIMITATIONS OF THE TEST

1. The HPV 16/18 Anitgen Rapid Test Device (Swab) is for professional *in vitro* diagnostic use, and should be used for the qualitative detection of HPV 16/18 E6&E7 Oncoproteins only. There is no meaning attributed to linen color intensity or width.
2. Detection of HPV 16/18 E6&E7 Oncoproteins is dependent on the number of proteins present in the specimen. This may be affected by specimen collection methods and patient factors such as age, history of STD, presence of symptoms, etc. The minimum detection level of this test may vary according to serovar.
3. The expression of E6&E7 oncoprotein is only indicate the risk of cervical cancer and pre-cancer occures, the positive results do not confirm the cancer or pre-cancer occures and the negative results can not exclude the happening of cervical cancer and pre-cancer.
4. As with all diagnostic tests, a confirmed diagnosis should only be made by a physician after all clinical and laboratory findings have been evaluated.

PERFORMANCE CHARACTERISTICS

Table: *StrongStep*® HPV 16/18 E6&E7 Oncoproteins Test vs. TCT

Relative Sensitivity: **Relative Specificity:** **Overall Agreement:**			IHC		
			+	**-**	**Total**
	***StrongStep*® HPV Test**	**+**			
		-			

The antibody used in the HPV 16/18 Antigen test has been shown to detect HPV type 16 and 18. Cross reactivity with other organisms has been studied using suspensions of 10^7 org/ml. The following organisms were not detected using the test:

Acinetobacter calcoaceticus	*Proteus vulgaris*
Salmonella typhi	*Acinetobacter spp.*
Staphylococcus aureus	*Candida albicans*
Neisseria catarrhalis	*Neisseria gonorrhoea*
Neisseria meningitidis	*Neiiseria lactamica*
Escherichia coli	*Gardnerella vaginalis*
Streptococcus faecalis	*Streptococcus faecium*
Pseudomonas aeruginosa	*Trichomonas vaginalis*
Ureaplasma Urealyticum	*Mycoplasma hominis*

LITERATURE REFERENCES

1. Giovane C., et al., J. Mol. Recog. 1999;12:141-152.
2. Joo-Ho Kim, et al., Bull. Korean Chem. Soc. 2009;30;2999-3005
3. Sexually Transmitted Diseases, 4th Edition. King K. Holmes. McGraw-Hill Professional, 2007.

GLOSSARY OF SYMBOLS

REF	Catalog number		Temperature limitation
	Consult instructions for use	LOT	Batch code
IVD	In vitro diagnostic medical device		Use by
	Manufacturer	Σ	Contains sufficient for <n> tests
	Do not reuse	EC REP	Authorized representative in the European Community
CE	CE marked according to IVD Medical Devices Directive 98/79/EC		

Liming Bio-Products Co., Ltd,
No. 12 Huayuan Road,Nanjing, Jiangsu, 210042
P.R. China.
Tel: (0086)25 85476723 Fax: (0086)25 85476387
E-mail: sales@limingbio.com
Website: www.limingbio.com
www.stddiagnostics.com
www.stdiagnostics.com

EC REP WellKang Ltd.(www.CE-marking.eu) Tel: +44(20)79934346
29 Harley St., London WIG 9QR,UK Fax: +44(20)76811874