QC Sciences™ NuView System™ for Non-GYN Cytology contains 100 vials of NuCyte™ Cytology Fixative, 500 mL of NuPrep™ Enhancement Solution, 100 mL NuMatrix™ Thin-Layer Cell Solution, 216 glass slides and 100 cotton swabs.
**NuView System™**

*For Non-Gyn Cytology Procedure*

The NuView System™ gives diagnostic laboratories the ability to process liquid-based cytology specimens using a monolayer preparation technique. This system features three distinct products that yield selective cellular enhancement of the sample without proprietary equipment or expensive consumables.

The NuView System™ can process multiple sample types such as urine cytologies, fine needle aspirates, body cavity fluids, brushings and exfoliated samples. The versatility of the system is a function of the NuMatrix™ *Thin-Layer Cell Solution* that creates a monolayer of cells of any adequately fixed and processed biological sample on a microscope slide. The NuCyte™ *Cytology Fixative*, a patented fixative, reduces the formation of crystals in urine samples and maintains osmolarity for other types of samples. The NuPrep™ *Enhancement Solution* reduces the presence of obscuring RBC, lubricants and background material. This system provides the pathologist and cytologist with an optimal representation of diagnostic samples.

**Provided Materials:**
- 100 vials of NuCyte™ *Cytology Fixative*
- 500 mL of NuPrep™ *Enhancement Solution*
- 100 mL of NuMatrix™ *Thin-Layer Cell Solution*
- 216 Glass Slides
- 100 Cotton Swabs

**Other Materials Needed:**
- Pipettor or disposable plastic pipettes
- Absorbent pad
- Centrifuge
- Vortexer
- Centrifuge tubes 50 mL
- Centrifuge tube racks
- Gauze
- Slide board

**Recommended Materials:**
- Oven, fan or slide warmer

**General Processing Steps:**
1) Obtain sample in NuCyte™ Cytology fixative. Allow adequate time for fixation.
2) Concentrate sample by centrifugation. Discard supernatant fixative.
3) If needed, wash sample with NuPrep™ to remove obscuring RBC, lubricant and other debris.
4) Add appropriate amount of NuMatrix™ and create the required number of slides. Allow slides to dry.
5) Process slides using routine protocols for H&E, PAP and special stains or modify protocols for IHC or FISH processing.
**Processing Steps for Urine Cytology:**

1) **Sample Fixation**

Urine samples are biologically complex and can vary widely in cellularity, pH, protein, blood and ionic content. Optimal presentation of diagnostic material is dependent on the use of a proper fixative and processing technique. QC Sciences' recommends the use of the NuCyte™ *Cytology Fixative* for use with urine cytologies. This patented fixative has a chemical composition that prevents the formation of most crystals and the precipitation of many ionic and protein components. This fixative will help with selectively presenting diagnostic cells compared to urine preserved in other fixatives.

   a) Urine should be fixed without diluting NuCyte™ over 50%. Optimal fixation occurs when an equal volume of NuCyte™ fixative is added to the urine sample.
   
   b) Fixation should be allowed to proceed for at least one hour. Samples fixed in NuCyte™ show good preservation up to seven days at room temperature.

2) **Sample Concentration**

   a) Vortex or vigorously shake the specimen vial for 10-15 seconds to fully suspend any cells that have settled to the bottom of the container.

   b) For a clear specimen, aliquot 30-50 mL (if available) of the sample in a centrifuge tube. For turbid, cloudy or an extremely bloody specimen, aliquot 10-30 mL of the sample in a centrifuge tube. Reducing the volume for the turbid sample will improve the sample washing during Step 3 and prevent wasting NuMatrix™ *Thin-Layer Cell Solution* in the final steps.

   c) Centrifuge specimen between 800-1200 x g (relative centrifugal force or g force, not RPM) for 10 minutes.

   d) At the completion of the spin, remove the tube from the centrifuge with care. Decant the urine with a quick motion, turning the tube upside down to prevent any loss of the pellet. Dab the edge of the tube on an absorbent pad to remove any excess fluid.

   e) For samples with small to invisible pellets, skip Step 3 and immediately wipe the inside of the tube with a cotton swab and proceed to Step 4, Preparation of Slides. The complete removal of liquid is essential mostly for samples with small to visually nonexistent pellets so that samples are not further diluted. For samples with medium to large pellets, continue to Step 3 Sample Washing.

3) **Sample Washing**

   This step is not essential to creating monolayer slides with the NuView System™. Completing this step can reduce background, especially with turbid or extremely bloody samples and help with selective cellular enhancement. A small number of red blood cells are diagnostically important, but extreme obscuration due to blood, crystals or other debris can hinder diagnosis. The NuCyte™ *Cytology Fixative* limits the formation of such debris. If the sample is bloody or turbid, the wash will help reduce the amount of background and improve the selective presentation of cells on the slide.

   a) Add 3-10 mL of NuPrep™ *Enhancement Solution* to the sample depending on the size of the cell pellet.

   b) Vortex the tube to resuspend the pellet completely in the solution.

   c) Let the sample sit for at least 10 minutes in NuPrep™. Longer incubation times, up to one hour, may be required for samples with larger pellets. Significant softening of lubricants will be observed by longer incubations and mechanical agitation.

   d) Centrifuge the sample for 10 minutes at 800-1200 x g.
e) Decant NuPrep™ by quickly inverting the tube into a container suitable for disposal as acid alcoholic waste.

f) Thoroughly dry the tube before starting Step 4. Place the inverted tube on an absorbent pad. Once NuPrep™ has been wicked away, quickly dry any remaining NuPrep™ in the tube using the provided cotton swab.

4) Preparation of Slides

NuMatrix™ Thin-Layer Cell Solution coats any particulate matter present in the sample with a soluble membrane which in turn adheres to the slide. Adding too much NuMatrix™ to a sample may result in low cellular representation and adding too little, especially for larger pellets, may result in thick drops and poor staining of the sample. The amount of NuMatrix™ used needs to be adjusted depending on the number of slides to be created. Use approximately 30-60 uL of NuMatrix™ to create a 20 mm circle. Use an extra 75 uL in the case of re-drops or for volumetric discrepancies.

a) For dispensing NuMatrix™ onto the cell pellet, use a dispenser such as a repeater pipettor, an adjustable pipettor or a disposable plastic pipette. For samples with a very small or visually absent pellet, the recommended volume is 150 uL (6-8 drops) of NuMatrix™ in order to create two slides and leave material behind for an additional slide if needed. For bigger pellets, a larger volume is recommended. For best results, the solution after resuspension should be relatively clear.

b) After dispensing the required amount of NuMatrix™, vortex the sample for 3-10 seconds to resuspend the cells into NuMatrix™.

c) Using a disposable pipette or adjustable pipettor, drop between 30-60 uL (1-2 drops from a disposable pipette) of the sample onto a clean glass slide. Keep the slide horizontal.

d) Allow the slide to air dry for 30-60 minutes.

e) The amount of time needed for the slides to dry will depend on the humidity, temperature and air movement in the room. To reduce the drying process time, use an oven, slide warmer, fan or a combined heated fan. This will reduce the drying time to 10 minutes.

5) Staining of Slides

a) Stain slides (H&E, PAP, Special stains) using standard laboratory procedures. Since pathologists and cytotechnicians have different preferences for stain intensity, no standard recommendation for staining times is made. Start slides in either a polar solvent like Xylene or an aqueous solution like water or reagent alcohol.

b) Coverslip slides using any method commonly used in the laboratory, including Xylene substitutes. Due to the thickness of the drops, greater mounting media may be required.

c) Dried slides can be stored for years without cell degradation.

d) Slides can be processed for IHC and FISH with no interference from NuMatrix™. To prevent cell loss, do not heat above 80° C.

e) Cell pellets can be stored in NuMatrix™ for up to two years, provided no evaporation occurs.

For more information, please contact our Technical Support group or visit our web site.

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