Cytoscrapes provide Quantitatively and Qualitatively Adequate DNA for Molecular Testing Comparable to Directly Collected Sample and Cell Blocks from Lung and Thyroid Fine Needle Aspirates

**Upasana Gautam**, Arvind Rajwanshi, Nalini Gupta, Radhika Srinivasan
Department of Cytology and Gynecological Pathology, Postgraduate Institute of Medical Education and Research, Chandigarh

---

**INTRODUCTION**

- Molecular testing is indispensable for state-of-art cytopathology practice
- Molecular testing can help guide appropriate therapy by identifying specific gene mutations which are therapeutic targets
- Molecular assays help in reaching an accurate diagnosis
- PCR / Real Time PCR is the most frequently used molecular technique in a molecular pathology laboratory.
- To perform any molecular test, good quality DNA / RNA from the cytopathology sample

**AIMS & OBJECTIVES**

To evaluate the quantity and quality of DNA extracted from cell scrapings from smears and cell blocks and its suitability for molecular analysis.

**MATERIALS & METHODS**

Excluded Insufficient DNA
N=4, all Thyroid FNA samples 1 Direct sample 3 cell scrapes

**RESULTS**

**Lung Cancer-Overall DNA Yield**

- **Thyroid FNA-Overall DNA Yield**

**DNA extracted using Qiagen DNeasy Mini Kit**

**Lung FNA Cell Scrapes-DNA Yield**

- **Thyroid FNA-DNA Yield**

**MATERIALS & METHODS**

**Samples collected** N= 86

**Samples included** N= 82

**Direct samples** 17
  - **Cell scrapes** 56
  - **Cell blocks** 9

**Samples included** N= 82

**Lung Cancer** 42
  - **CS-24, DS-0, CB-1**
  - **16 Effusions CS-6, DS-3, CB-8**

**Thyroid Cancer** 40

**All FNA CS-24, DS-0, CB-1**

**Time taken for Cytoscrapes**: 1 hour
**Time taken for Cell Blocks**: 4-6 hours

**Cell Scrapes**

- Adequately Cellular Smear scraped using a sterile scalpel blade

**Cell Blocks**

- Paraffin cell block
- 3-4 sections 10 μm thick
- Deparaffinized in Xylene, hydration by descending alcohols and brought to water

**Cell Blocks**

- Adequately Cellular Smear scraped using a sterile scalpel blade

**Discussion**

Cytoscrapes yielded more DNA than cell blocks and direct samples and had added advantage of assured lesional representation

**References**

6. Snow AN et al, BMC clin Pathology 2014 Jul 7;14:30

**Conclusion**

Cytoscrapes yielded more DNA than cell blocks and direct samples and had added advantage of assured lesional representation.