**UW Medicine - Pathology**

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Q-Banding by Fluorescence Using Quinacrine (QFQ)

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| Adopted Date: 09/04/91Review Date: 06/12/09Revision Date: 03/16/07 |

PURPOSE

Quinacrine banding is a result of the fluorescence enhancement of quinacrine at AT-rich DNA sequences in the chromosomes. Quinacrine banding is a very reliable technique that allows for identification of specific chromosomes and of structural rearrangements. It is especially useful in distinguishing the Y chromosome from the D-, E- and G-group chromosomes. Also, quinacrine polymorphisms (variable Q-bright areas of the satellites and centromeres of chromosomes) are especially useful in family studies (e.g., ruling out maternal cell contamination in amniotic fluid and chorionic villi chromosome analysis; identifying transfused cells in blood or bone marrow, quick scanning of Y bodies in interphase nuclei, etc.).

PROCEDURE

### Materials and Equipment

* + - 1. Coplin jars (2).
			2. Distilled H2O.
			3. Coverslips (25 x 50 mm #1).
			4. Fluorescence microscope (excitation 436 nm to 550 nm).
			5. 16X oil objective.
			6. 100X oil objective with iris.
			7. Immersion oil for fluorescence microscopy.

### Reagents and Solutions

* + - 1. Quinacrine dihydrochloride (Sigma Cat. #Q3251).
			2. Quinacrine solution: Dissolve l g quinacrine dihydrochloride (Sigma)/50 ml distilled H2O. Keep this solution in the refrigerator, in a staining jar wrapped in aluminum foil. Lasts 6 mo in refrigerator.
			3. McIlvaine's buffer pH 5.5

### Procedure

* + - 1. Stain with 20 mg/ml quinacrine solution for 7 min.
			2. Rinse slides with distilled H2O.
			3. Mount with a 24 x 50 mm coverslip using McIlvaine's buffer (pH 5.5) diluted 1:5 with distilled H2O (1 part McIlvaine’s:4 parts H2O).
			4. View in fluorescence microscope (excitation 436 nm, excitation 550 nm). Use 16X oil objective to scan, 100X oil with iris slightly closed to photograph. Use special immersion oil for fluorescence only. Slide can be unmounted, stored in jar or light-tight slide container, and remounted later.

REFERENCES

1. Human Cytogenetics. A practical Approach. Vol. I, eds. Rooney DE and Czepulkowski BA, Chapter 4, IRL Press, 1992.

Written By: Director Approval:

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 Cytogenetics Supervisor