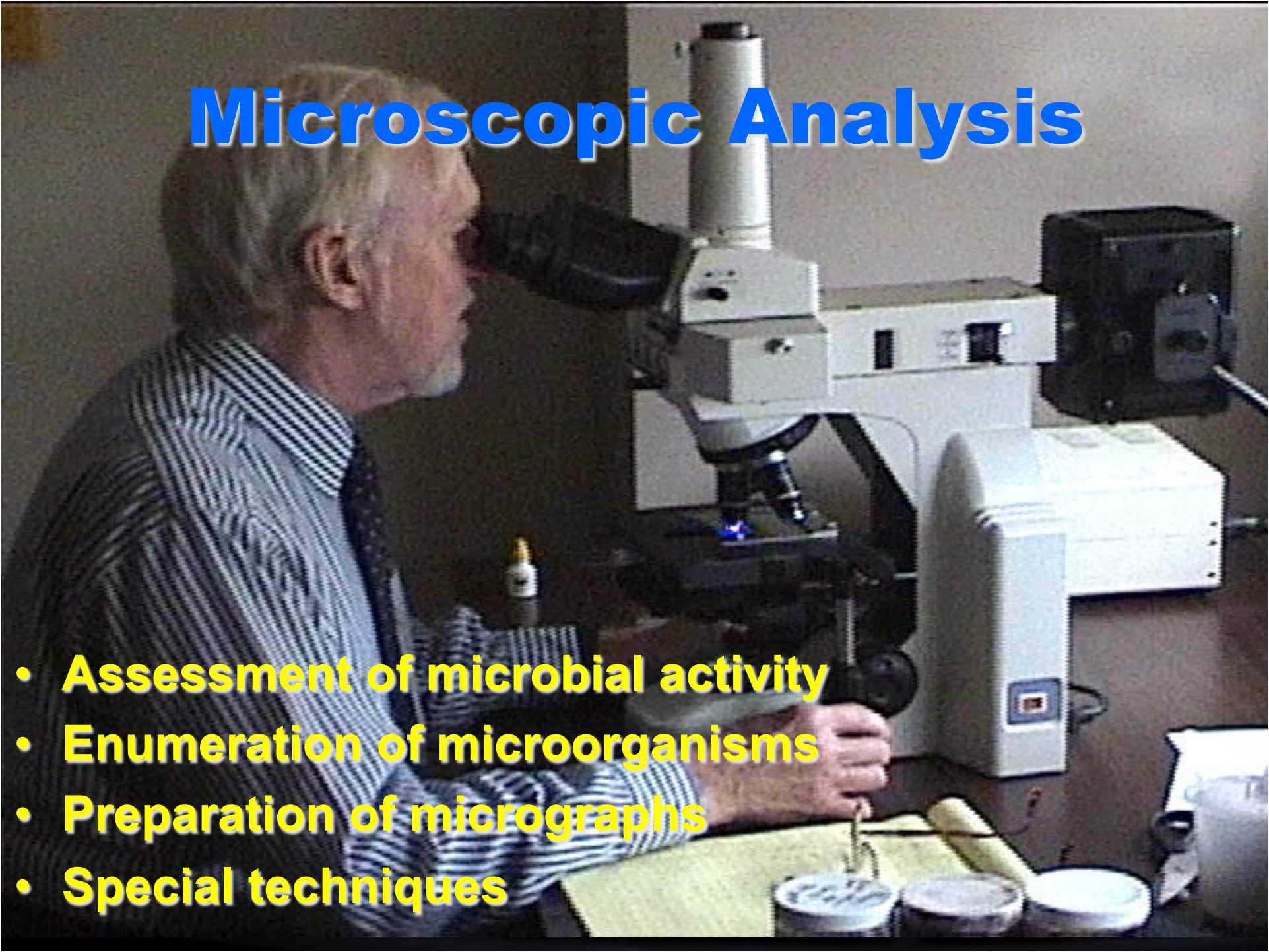


# Microbiology

Tom O'Connor

H<sub>2</sub>O'C  
ENGINEERING

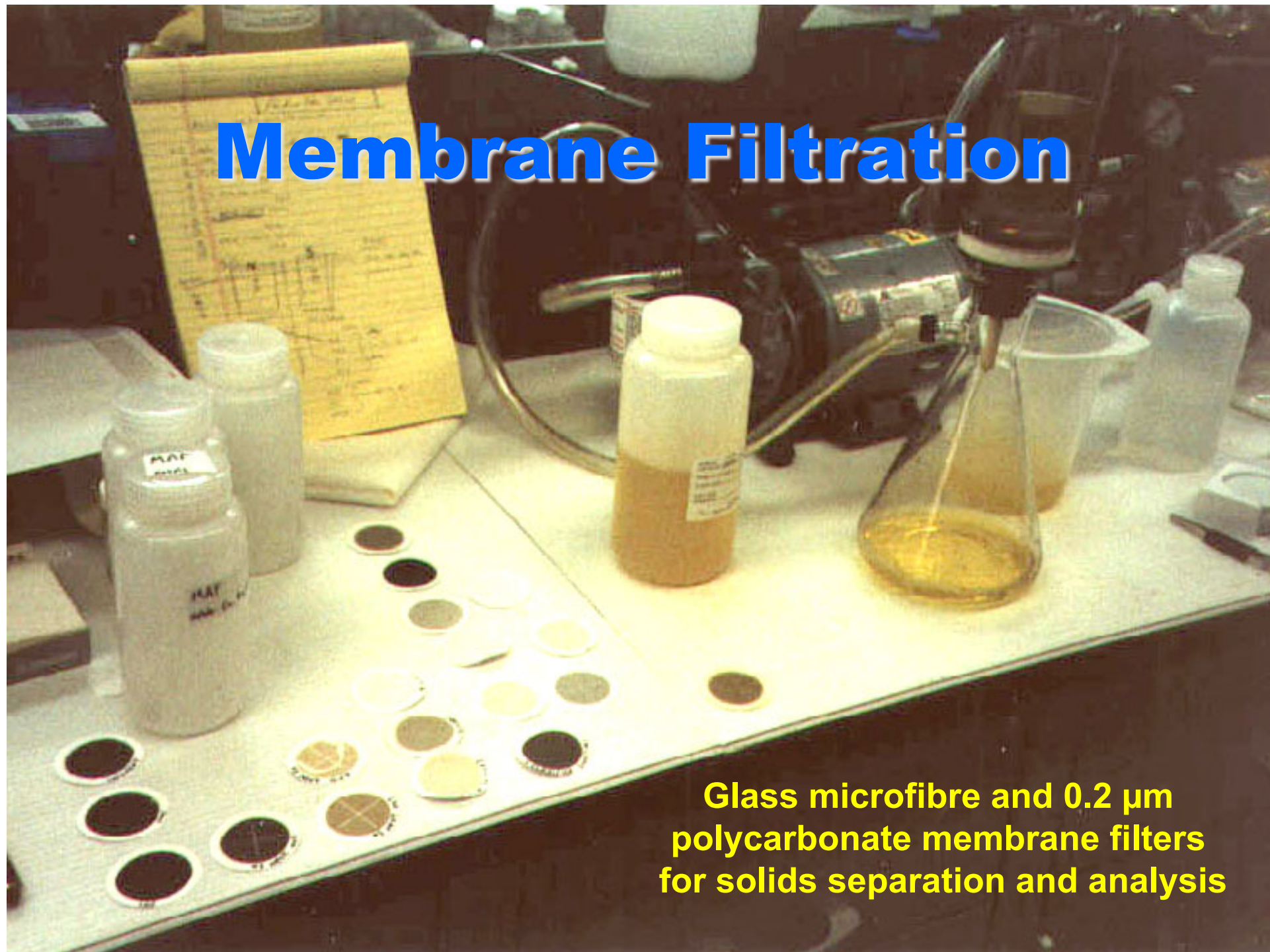
# Microscopic Analysis

A photograph of a man with grey hair, wearing a striped shirt, looking through the eyepiece of a large, white and black compound microscope. The microscope is on a desk. To the right of the microscope is a black camera or light source unit. In the foreground, there are several petri dishes and a small bottle. The background is a plain wall.

- **Assessment of microbial activity**
- **Enumeration of microorganisms**
- **Preparation of micrographs**
- **Special techniques**



# Membrane Filtration



**Glass microfibre and 0.2  $\mu\text{m}$   
polycarbonate membrane filters  
for solids separation and analysis**

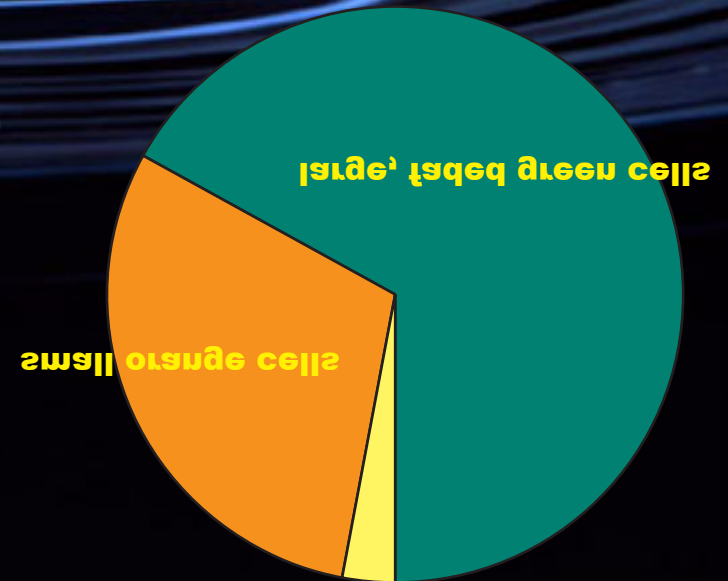
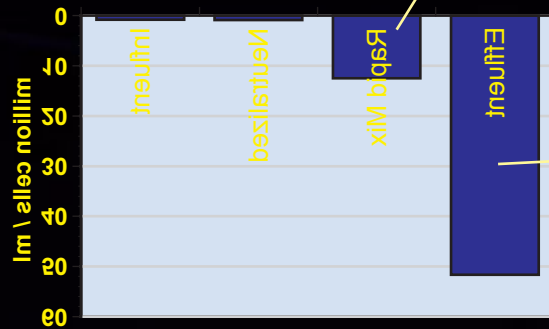
# Total Bacterial Cell Counts



# Bacterial Characterization

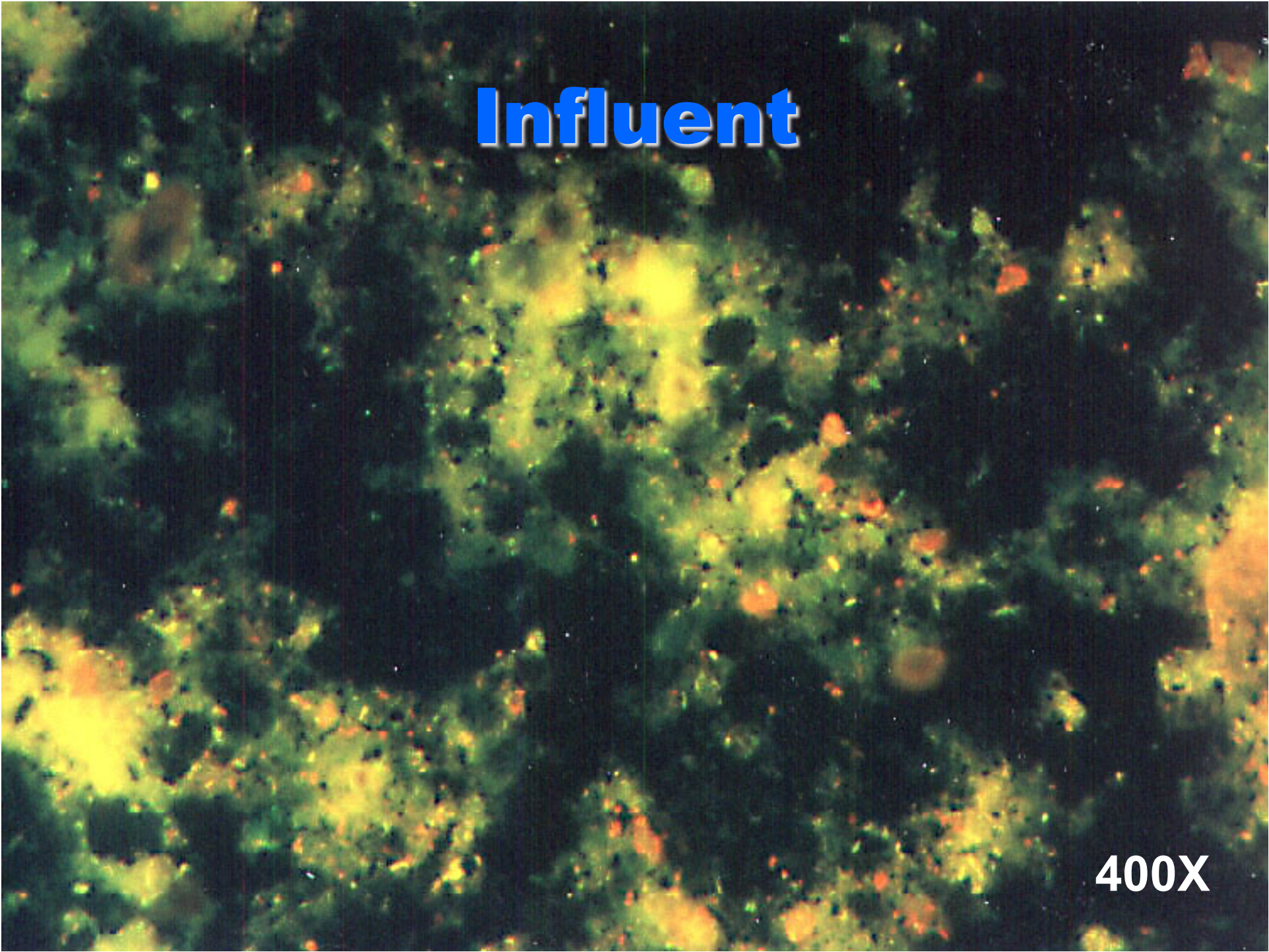


large, bright cells



large, bright cells



A fluorescence micrograph showing a dense field of microorganisms in an influent water sample. The organisms exhibit various colors, including bright green, yellow, and orange, against a dark background. The text 'Influent' is overlaid in blue with a white outline in the upper center. The magnification '400X' is indicated in white in the bottom right corner.

**Influent**

**400X**

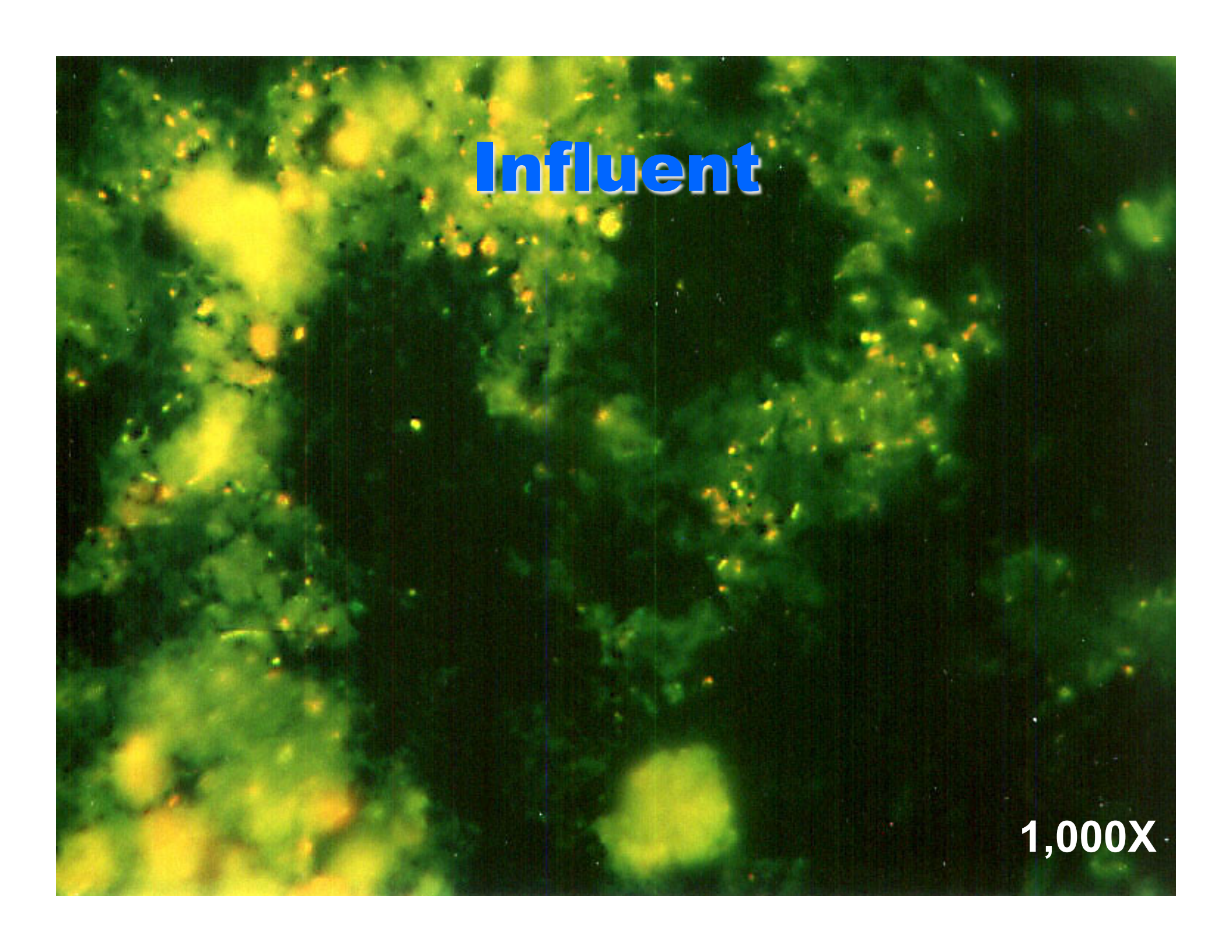


A high-magnification micrograph showing a dense, heterogeneous mixture of particles. The background is dark, with numerous bright, irregularly shaped clusters of yellow and green material. These clusters vary in size and density, suggesting a complex biological or chemical composition. The overall texture is granular and somewhat chaotic.

**Influent**

**400X**





**Influent**

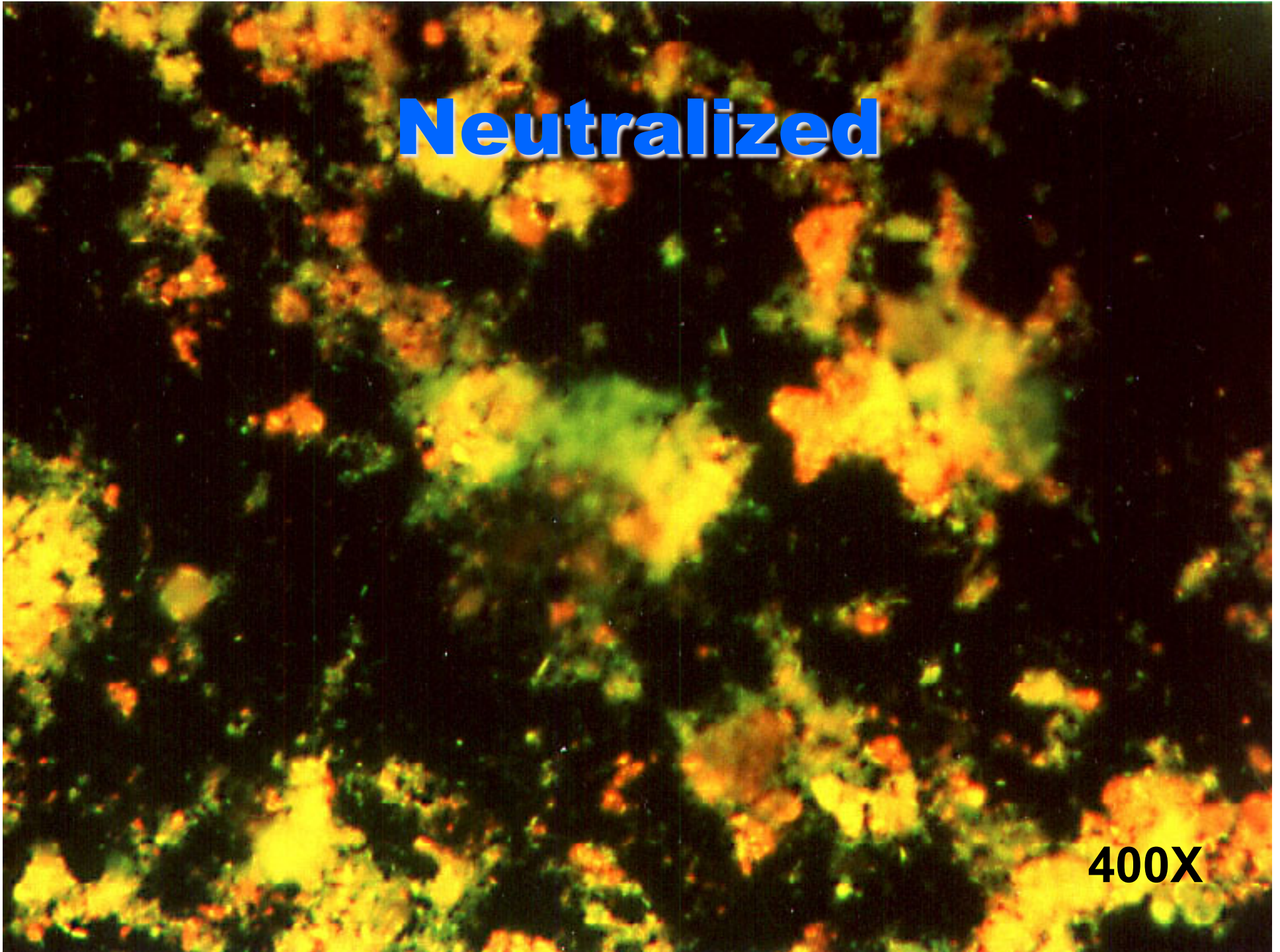
This fluorescence micrograph shows a dense population of microorganisms in influent water. The organisms appear as bright green and yellow-green clusters and individual cells against a dark background. The distribution is uneven, with higher concentrations in the upper left and right areas.

**1,000X**



**Neutralized**

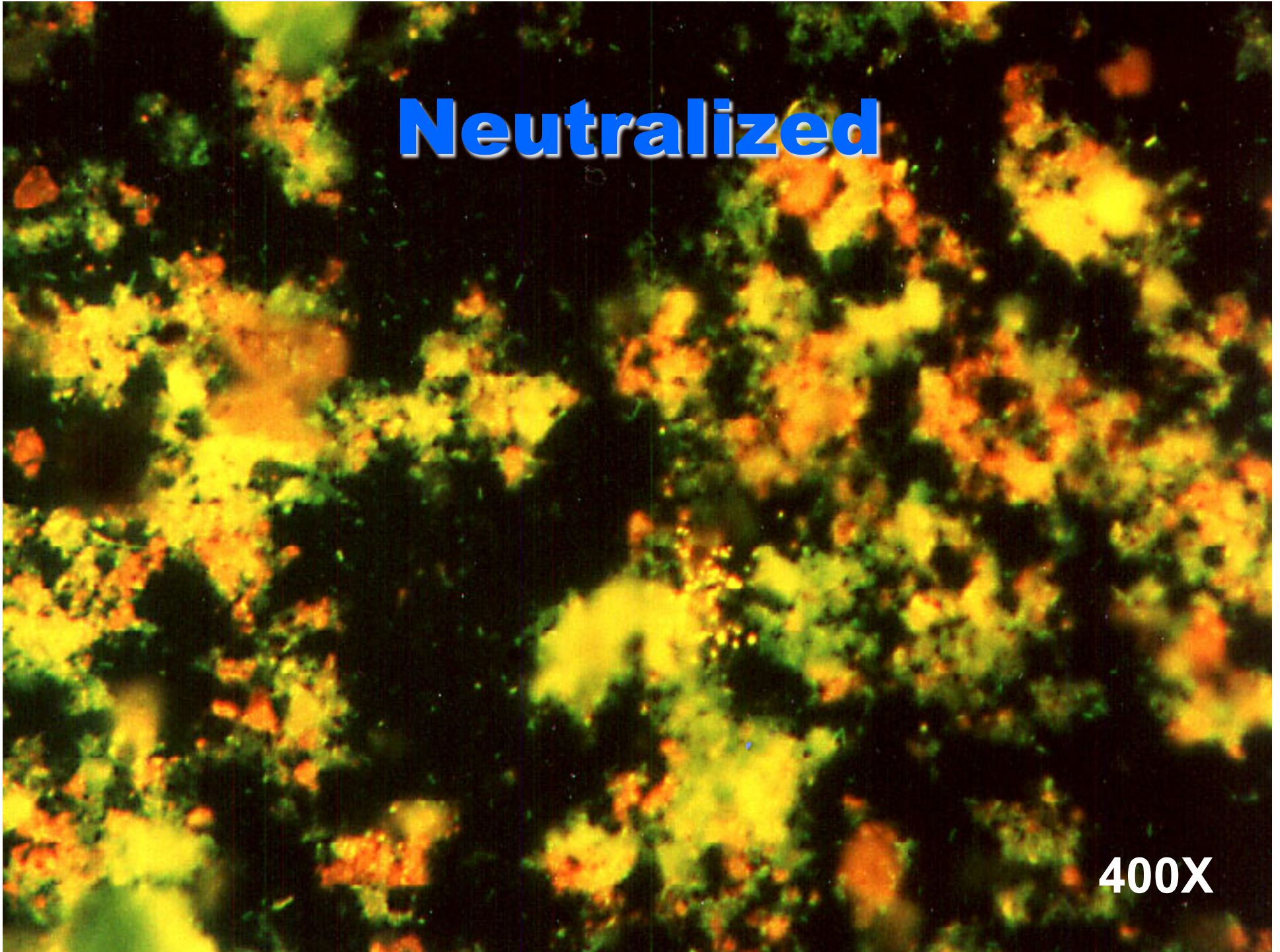
**400X**





**Neutralized**

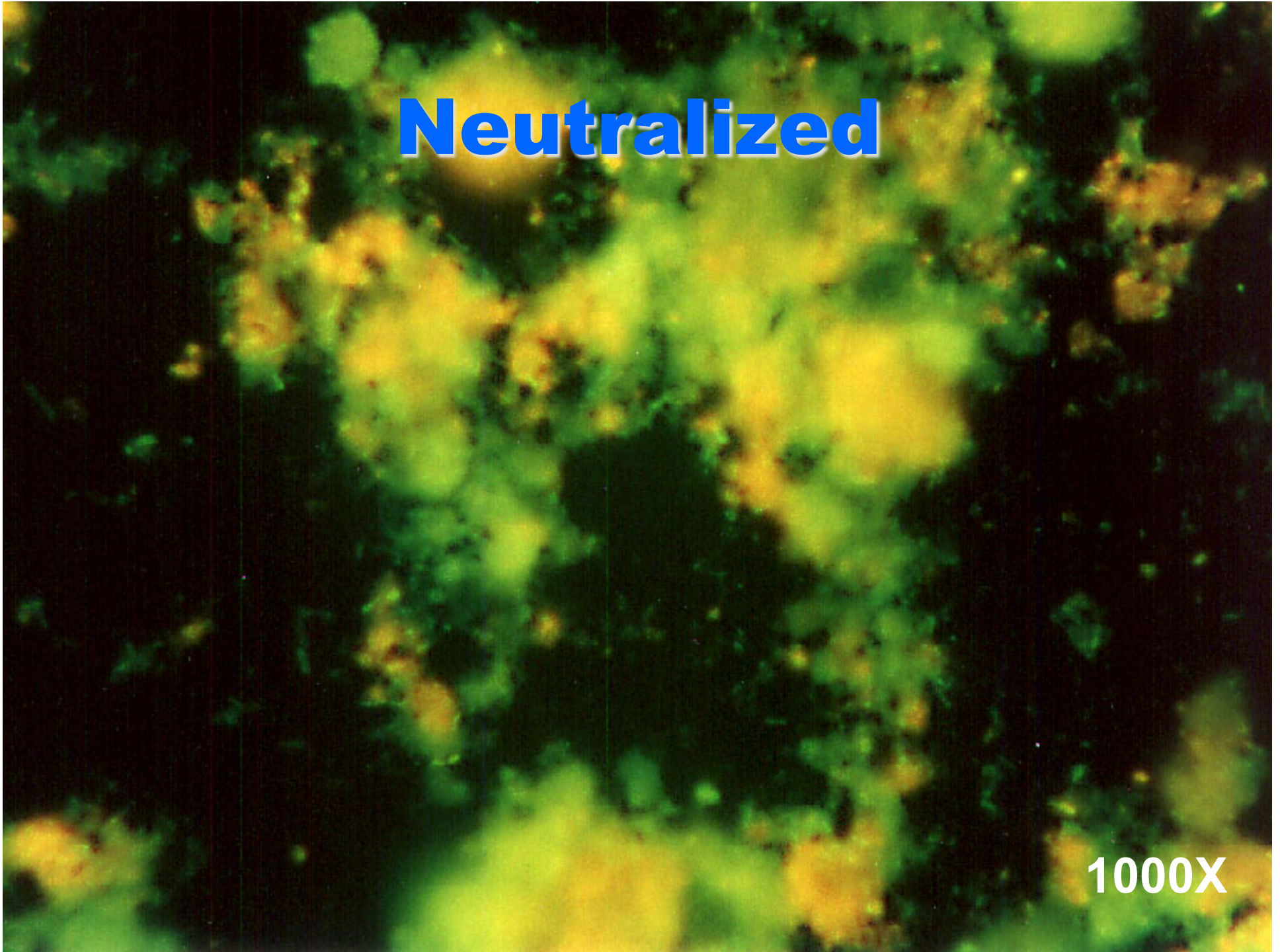
**400X**





**Neutralized**

**1000X**





# Rapid Mix

400X





# Rapid Mix

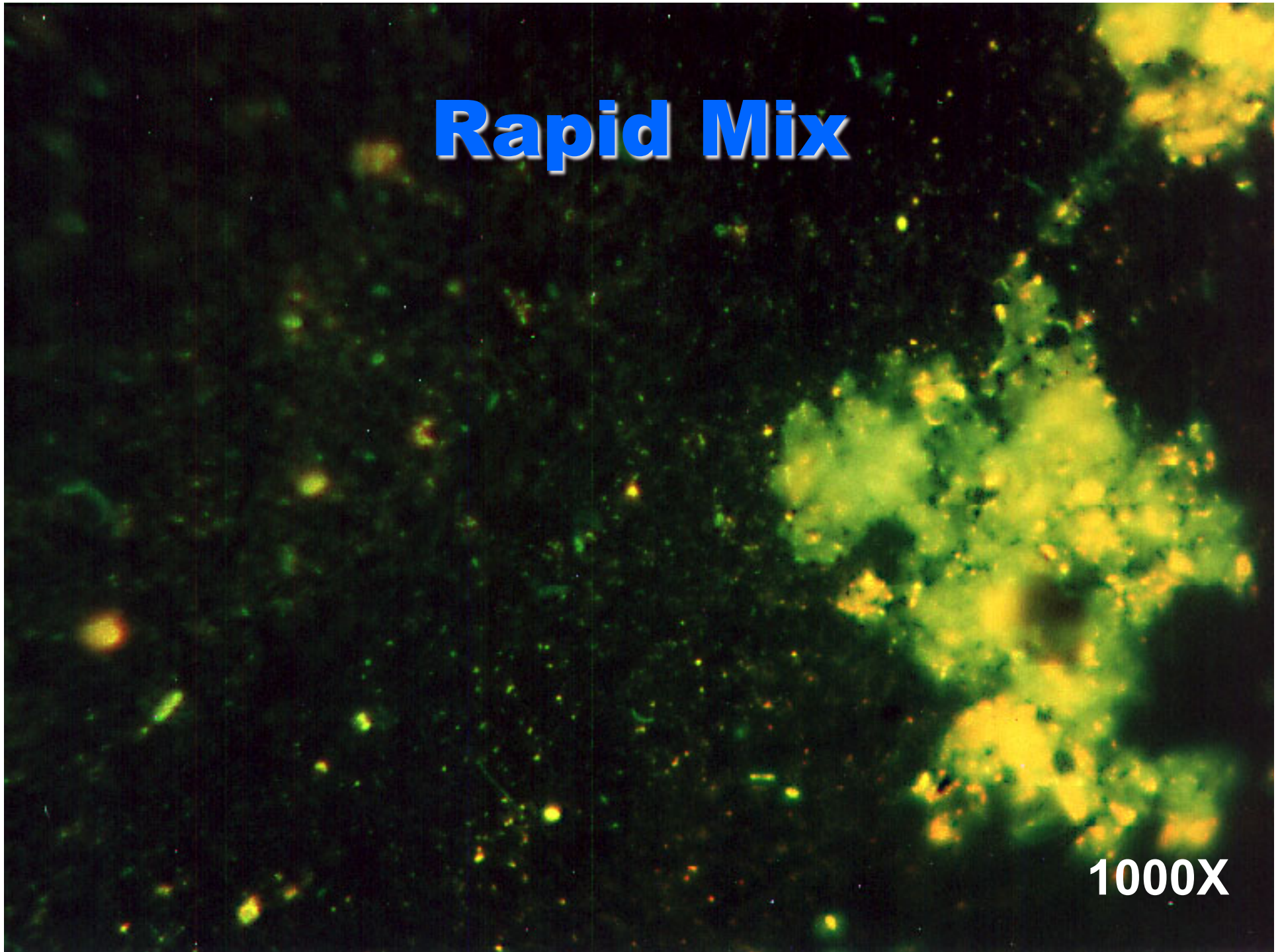
400X





# Rapid Mix

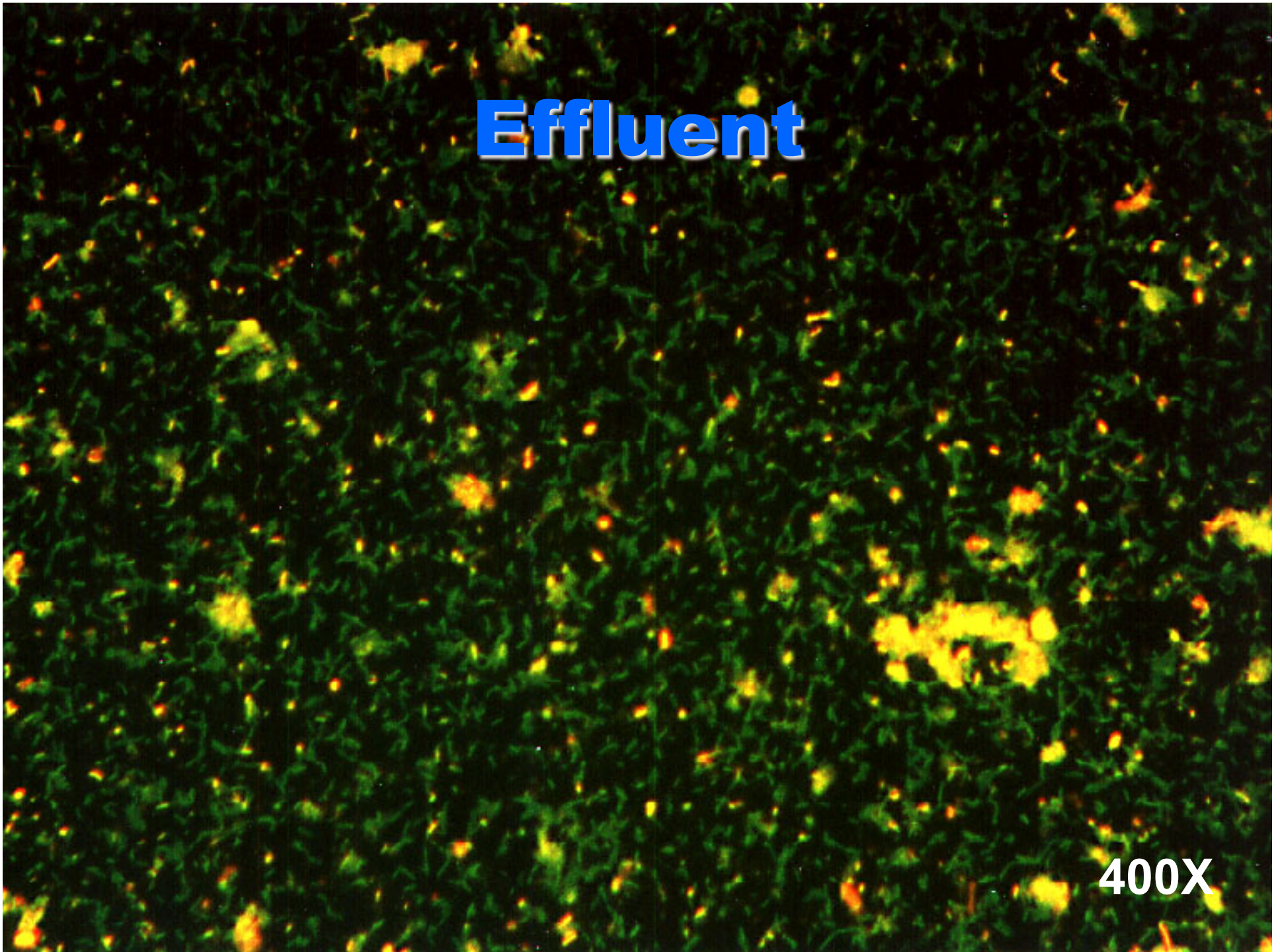
1000X





**Effluent**

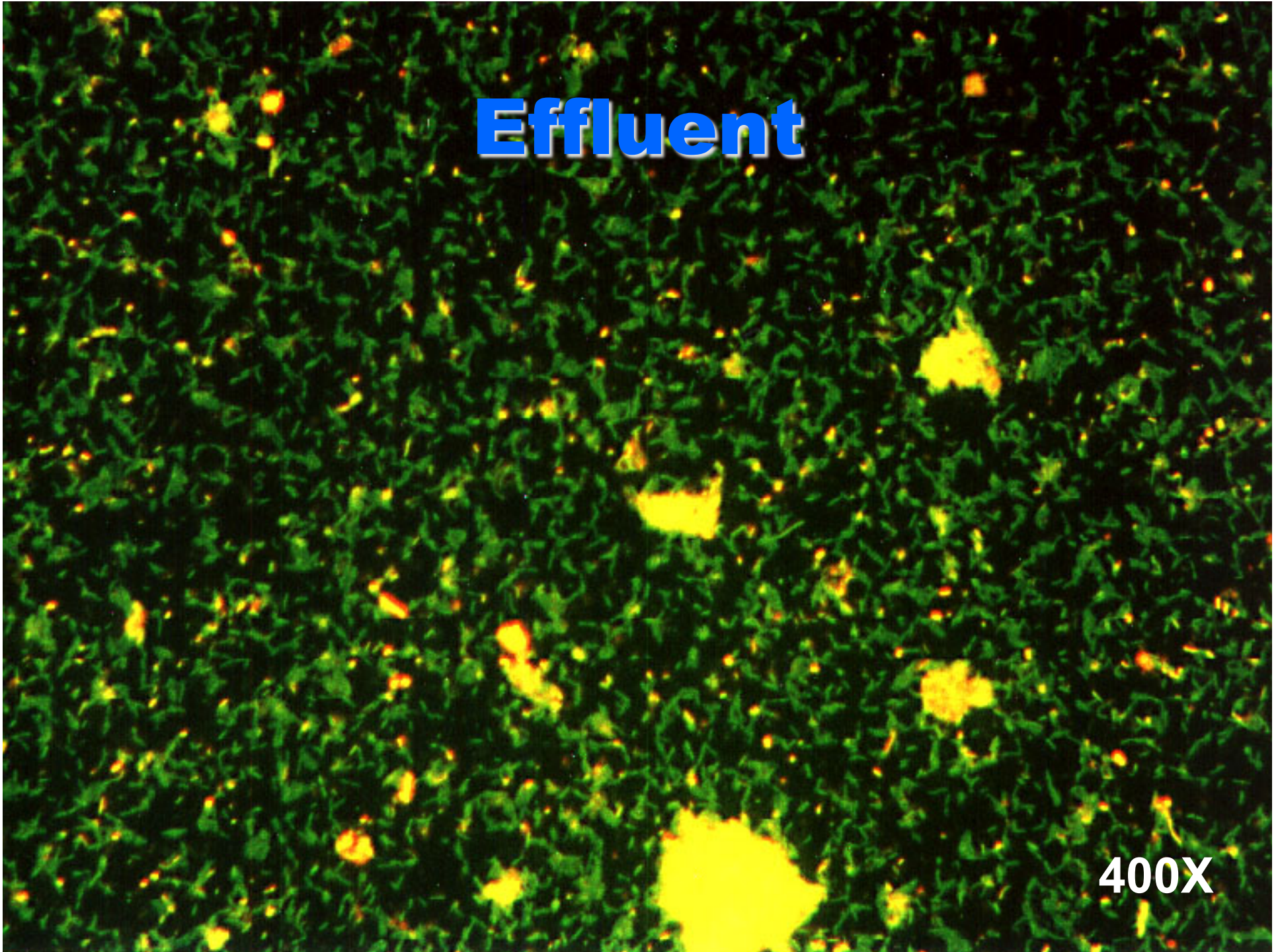
**400X**



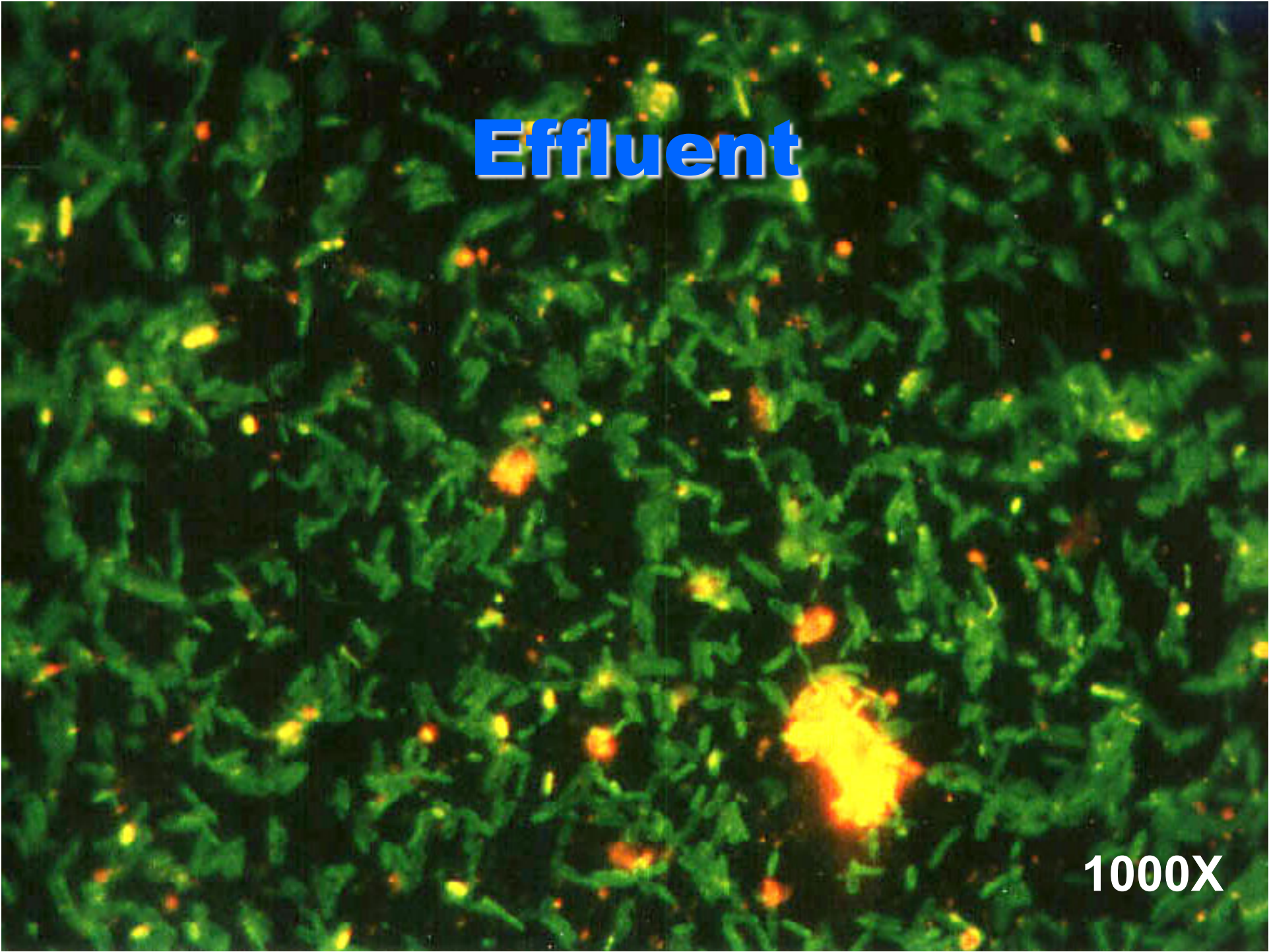


**Effluent**

**400X**



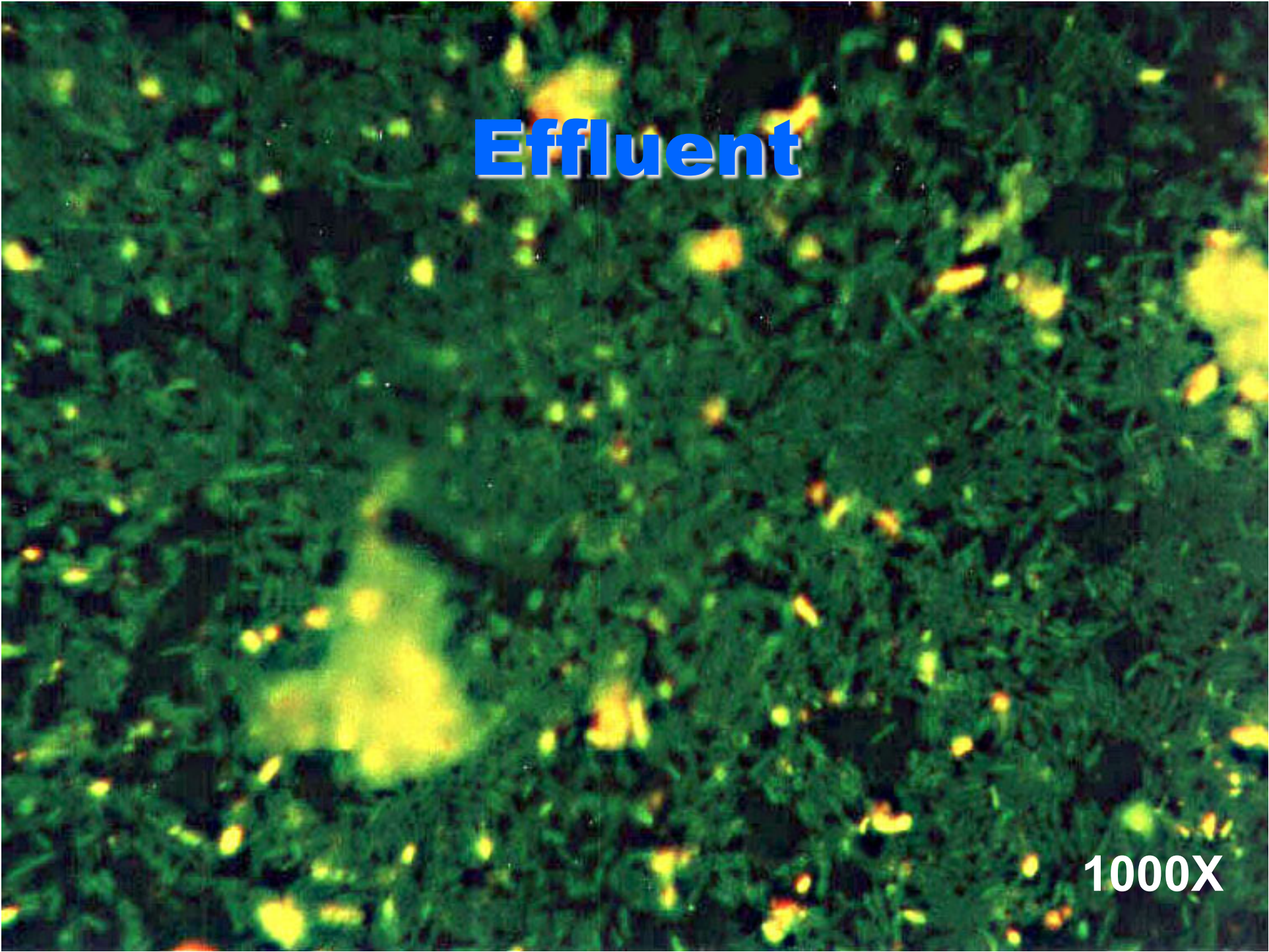


A microscopic image of effluent, showing a dense field of green, rod-shaped bacteria. Interspersed among these are numerous small, yellowish-brown, irregularly shaped particles, likely organic debris or other microorganisms. The background is dark, making the green and yellowish particles stand out.

**Effluent**

**1000X**





**Effluent**

This is a fluorescence micrograph of an effluent sample. The background is a dense field of green, likely representing chlorophyll or a specific fluorescent stain. Scattered throughout this green field are numerous small, bright yellow and orange spots. These spots vary in size and intensity, suggesting different concentrations or types of fluorescent components. The overall texture is grainy, typical of a micrograph.

**1000X**



# BOD<sub>5</sub> Removal

March, 2000



H<sub>2</sub>O'C  
ENGINEERING



# Activated Sludge from American Bottoms



- Paramecium

H<sub>2</sub>O'C  
ENGINEERING



# Activated Sludge from American Bottoms

- Protozoan



H<sub>2</sub>O'C  
ENGINEERING