

Revision : ----	Document Code WI- ML- 2480	Document Title: Standard Operating Procedure (SOP) for Gel Documentation System	 دانشگاه علوم پزشکی و خدمات بهداشتی و درمانی آستان قدس اسلامی
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1 Standard Operating Procedure (SOP): Gel Documentation System (Gel Doc) — Iranian-made

1. Objective

To define the proper procedure for operating the Gel Documentation system to image DNA/RNA (and protein when applicable) gels using fluorescent dyes and UV/appropriate light sources.

2. Scope

This SOP applies to gel documentation systems used in cell/molecular biology laboratories after electrophoresis, for visualization of:

- **DNA/RNA** bands using **fluorescent stains** excited by light matching the dyes' absorbance peaks.
- (If supported by the lab method) **proteins** stained with compatible fluorescent/chemiluminescent approaches.

3. Responsibility

The responsibility for executing this SOP lies with the designated laboratory experts.

4. Procedure (Method of Use)

1. Power On

- Turn on the **main power switch** of the Gel Doc system **together with the attached computer and peripherals**.

2. Prepare the Gel for Imaging

- Open the cabinet door of the device.
- Place the prepared gel on the **transilluminator (UV/white light illumination plate)**.

3. White Light (Visible Light)

- Use the **White Light** button to illuminate visible light inside the chamber (when needed for positioning/focusing).

4. Camera/Optics Adjustment

- View the image in the instrument's screen/monitor.
- Adjust **zoom and focus/clarity** using the camera lenses (or controls provided by the system).

5. Load the Imaging Software

- Start/load the imaging software on the computer.
- Select the relevant imaging option/workflow in the software.

6. UV Illumination

- Turn on **UV Light** for the transilluminator.
- Note: the transilluminator supports **two wavelengths: 254 nm and 312 nm** (as per device specification).

7. Capture Image

- Capture the gel image using the **Capture** function.
- Save the image in the **designated folder** with correct naming conventions.

8. Post-Imaging Cleanup

- Place the gel into the **waste disposal container (as per lab instructions) / safe disposal box**.

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- Clean the transilluminator surface using **laboratory grade cleaner/gas cleaning method** (per lab practice) and **distilled water**, then allow it to **dry**.

9. File Transfer / Archiving

- If you need to move or retrieve gel image files:
- **Burn the files to CD** for prevention of possible contamination-related issues.
- **Do not use USB flash drives** (as per laboratory policy).

10. Power Off

- At the end of the work, turn off:
- the **Gel Doc device**
- the **computer and peripherals**.

5. Safety Precautions

1. Carcinogenic Stains

- Fluorescent DNA stains (e.g., stains used for nucleic acids) may be **carcinogenic**.
- **Wear gloves** while handling/placing the gel on the transilluminator.

2. UV Exposure Control

- After placing the gel and **while the UV lamp is ON**:
 - do **not** open the cabinet door
 - do **not** move the gel
 - do **not** look directly at the UV source
 - avoid direct UV exposure to **skin and eyes**
 - Wear **UV protective eyewear/shield** (as required).
- ### 3. UV Lamp Cleaning Cycles
- UV lamps/transilluminator area must be **cleaned at regular intervals** following the device/lamp maintenance instructions.
- ### 4. Maximum UV Exposure Time
- The **maximum continuous operating time** of the imaging illumination should **not exceed 10 minutes**.
 - This reduces risk and improves device lifetime.

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5. General Handling

- Follow the laboratory's chemical safety rules for handling stains and biohazard materials (SDS compliance, labeling, and waste stream separation).

6. Maintenance / Cleaning (Routine Care)

1. Stability

- Ensure the **base and platform** are stable and properly leveled during use.

2. Cleaning Method

- Clean the unit using **paper towels or a soft cloth**.

3. No Abrasives

- Do **not** use corrosive cleaners, rough cloth, or abrasive materials that may **scratch** the device surfaces.

4. Hazardous Materials

- Handle hazardous materials and stains strictly according to approved temperature/workup and safety conditions.

5. Storage Conditions

- Store the device in a **dry** location.

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