

CometAssay™ ES

Catalog # 4250-050-ES

Electrophoresis system* for the CometAssay™

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*Patent Pending

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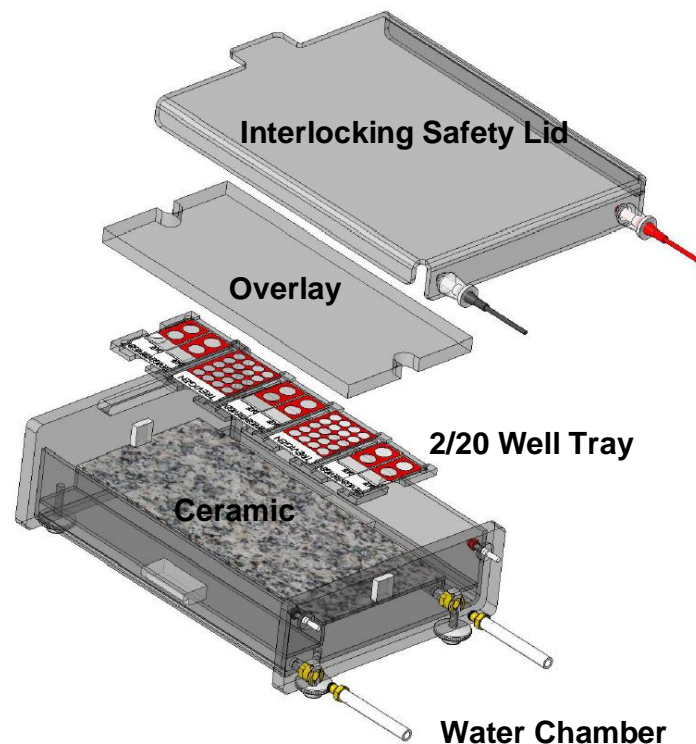
Figure 1: Trevigen's CometAssay™ Electrophoresis System

I. Introduction

Trevigen's CometAssay™ provides a simple and effective method for evaluating DNA damage in cells. The principle of the assay is based upon the ability of denatured, cleaved DNA fragments to migrate out of the cell under the influence of an electric field, whereas undamaged DNA migrates slower and remains within the confines of the nucleoid when a current is applied. Evaluation of the DNA "comet" tail shape and migration pattern allows for assessment of DNA damage. In this assay, cells are immobilized in a bed of low melting point agarose, on a Trevigen CometSlide™. Following a gentle cell lysis, samples are treated with alkali to unwind and denature the DNA and hydrolyze sites of DNA damage. The samples are then submitted to alkaline electrophoresis and staining with a fluorescent DNA intercalating dye. The sample is then visualized by epifluorescence microscopy. Quantitative and statistical data can readily be generated by analysis of the results using one of several commercially available image analysis software packages which calculate percent DNA in the tail.

Variability has been observed when performing the comet assay. Trevigen has developed a CometAssay™ Electrophoresis System (ES) (Figure 1) optimized for use with Trevigen's CometAssay™ Kits (e.g. cat# 4250-050-K) and Control Cells (cat# 4256-010-CC). Electrophoresis may be performed using TBE buffer or alkaline electrophoresis solution. TBE Buffer is used with the Neutral Comet Assay to detect double-strand breaks. The Neutral Comet is less sensitive than the Alkaline Comet Assay which detects all types of DNA damage. While the Alkaline Comet assay is more sensitive for DNA damage; the non-buffered alkali solution used for electrophoresis is more sensitive to variations in buffer height, temperature, and ion concentration which affect DNA migration.

The CometAssay™ Electrophoresis System overcomes variations first by placing an acrylic overlay on top of an elevated slide tray to maintain optimal buffer height for DNA migration. Secondly, a constant buffer temperature is maintained using an external water chamber to cool the ceramic slide platform and buffer chamber. Electrophoresis time for optimal DNA migration is achieved in 30 minutes using alkali (pH>13) at 1V/cm. The smoke grey colored unit is designed to minimize exposure to UV light but still allow visual inspection. Third, specially designed slide trays are also provided to accommodate 2, 20 and 96 well slides and maintain proper slide orientation during electrophoresis. Trevigen's CometAssay™ Electrophoresis System, and CometAssay™ Control cells (cat# 4256-010-CC) enable investigators to consistently optimize alkaline comet assays for highly reproducible results, and to standardize alkaline electrophoresis methods between individual users and laboratories.



II. Safety Information and Warnings

1. **Caution! Electrical Hazard!** This equipment is designed for use with a DC power supply providing up to 250 VDC. Although equipped with a safety interlock system, this apparatus should always be operated with extreme caution. Careless handling can result in electrical shock. To avoid any risk of injury, the instrument should be operated in accordance with the instruction provided. Trevigen is not responsible for any injury or damage caused either by the use of this instrument for purposes other than for which it is intended or by modifications of the instrument not by Trevigen.
2. **Do not freeze.** Aqueous coolant expansion will damage the unit. Never operate damaged or leaking equipment.
3. The CometAssay™ Electrophoresis System is specifically designed with an interlocking safety lid so no part of the active electrophoresis chamber is exposed during operation. Do not attempt to modify this safety design.
4. Always connect the cables to the power supply before turning the power supply on.
5. Never exceed maximum allowed voltage (250V) or current (450 mA).
6. Power to unit is to be supplied by an external DC-voltage power supply.
7. This instrument is designed and certified to meet IEC 1010-1 safety standards.
8. We recommend cleaning the unit with water and nonabrasive soap or detergent, followed by a rinse with deionized water. Avoid abrasive cleaners and rough cloths or brushes. Do not expose the apparatus to window sprays, phenol, acetone, benzene, halogenated hydrocarbon solvents, or undiluted laboratory alcohols.
9. Do not expose the unit to prolonged exposure to UV light, or excessive heat such as dry heat sterilization or autoclaving.
10. Never fill the water chamber without both hoses attached. Attached hoses allow for the release of excess water pressure which can damage the unit.

III. Description of Equipment

1. Electrophoresis Tank with Leveling Bubble and Hoses

The electrophoresis system is made of translucent smoke grey acrylic plastic. The deck plate is made of machinable ceramic, which quickly transfers heat from the slide plate to the surrounding water chamber to help maintain cool and even slide temperature during alkaline electrophoresis. The level of the electrophoresis system is adjusted using the four leveling feet with the leveling bubble resting on top of the deck plate. The enveloping water chamber is filled by attaching **both** hoses to external recirculation ports. Care must be taken when filling to remove as much of the air under the deck plate as possible. The recommended buffer volume is 950 ml. Base dimensions are 21 cm x 29 cm.

2. Safety Lid and Cables

The interlocking safety lid is made of black translucent smoke grey acrylic plastic with attached cables. The lid is designed to slide into a rectangular latch. The cables and latch are at opposite ends of the safety lid. Always check that the cables are properly connected to the electrodes.

3. 2/20 (Cat# 4250-050-ES1) and 96 (Cat# 4250-050-ES2) Well Slide Trays

The slide trays, machined from acrylic material, are designed to locate the slides in their running position and for easy slide removal at the completion of electrophoresis. The 2/20 Well Slide Tray holds ten 2-well or five 20-well slides. The 96 Well Slide Tray holds three 96-well slides.

4. Slide Tray Overlay

The 1.3 cm acrylic Overlay is designed to sit on top of the Slide Tray and maintain a constant buffer height (current path) of 0.4 cm above the tray. The volume of electrophoresis buffer in the tank must be filled below the top of the overlay but above its base line for proper operation.

IV. Materials Required But Not Supplied

1. AC Power Supply designed to supply constant voltage, amperage, or power with automatic cross-over. Minimal Output specifications are 21V (constant) with fluctuating amperage to 400 mA.
2. Peristaltic pump for enhanced cooling of external water chamber (optional)
3. NaOH Pellets
4. 10X TBE Buffer (required for neutral electrophoresis)
5. 0.5M EDTA (pH 8.0) (required for alkaline electrophoresis)
6. Deionized water
7. CometAssay™ Kit (required: e.g. cat# 4250-050-K) (recommended: CometAssay Control Cells: cat# 4256-010-CC)¹

¹ Available from Trevigen; refer to Section XI for ordering information.

V. Reagent Preparation

Prepare one of the following electrophoresis solutions based on the sensitivity of assay desired.

1. Alkaline Electrophoresis Solution pH>13 (200 mM NaOH, 1 mM EDTA)

Prepare a stock solution of 500 mM EDTA, pH 8 (disodium salt)

For 1 liter of electrophoresis solution:

NaOH pellet	8 g
500 mM EDTA, pH 8	2 ml
dH ₂ O	to 1 liter (after NaOH is dissolved)

Use of freshly made solution is recommended.

2. 1X TBE (Neutral) Electrophoresis Buffer

To prepare 10X TBE:

Tris Base	108 g
Boric Acid	55 g
EDTA (disodium salt)	9.3 g

Dissolve in 900 ml dH₂O. Adjust volume to 1 liter and autoclave. Store at room temperature. Dilute the 100 ml 10X TBE into 900 ml dH₂O to prepare working 1X strength buffer.

VI. Operation of Equipment

A. Initial Setup

1. Fill water chamber. Stand the unit on end with the hose ports on top. Carefully attach **both** hoses to port plugs on electrophoresis tank by depressing metal clamp on port and inserting each hose. The electrophoresis tank is next placed vertically in a laboratory sink with one hose positioned onto a dH₂O tap. The water chamber is full when water is released from the second hose. When the hoses are released from the electrophoresis tank the water chamber is sealed. **Never fill the water chamber without the second hose attached to release water pressure or the unit may crack. Do not use damaged units.** Another option is to fill the tank with cold water if the user is unable to cool electrophoresis unit in cold room or refrigerator.

2. Level electrophoresis tank. Level the electrophoresis tank using the leveling bubble provided by adjusting the four thumbscrew feet.

B. Alkaline Electrophoresis, pH>13

1. Cool electrophoresis tank, tray, overlay and lid to 4° by placing in cold room or refrigerator. Do not freeze the unit. Align the slots of the appropriate slide tray and place on ceramic base platform. Inserting finger slots of slide tray adjacent to cathode (black) electrode is recommended.

2. Prepare Alkaline Electrophoresis Solution. Prepare fresh 1L Alkaline Solution, pH>13 as described in Reagent Preparation. Cool alkaline electrophoresis buffer to 4°C by pouring 950 ml of alkaline buffer into electrophoresis tank placed in cold room or refrigerator.

3. Perform Alkaline Comet Quick Reference (VII.A).

4. Perform Alkaline Electrophoresis.

- i. Immediately prior to electrophoresis, place electrophoresis unit at room temperature.
- ii. Insert slides into tray. Two well slides are locked into position by placing two slides into each position. Recommend always placing slide with Trevigen logo adjacent to cathode (black) electrode. DNA migrates towards the anode (red) during electrophoresis (Figure 1).
- iii. The 950 ml of Alkaline Solution should completely cover the slides. Carefully insert Slide Tray Overlay over slide tray by aligning slots. To ensure complete buffer coverage of slides, gradually lower Slide Tray Overlay in a manner similar to lowering a slide coverslip.
- iv. Verify that the Alkaline Solution is not above the Slide Tray Overlay.
- v. Set the power supply to 21 V (1 volt per cm). Apply voltage for 30 minutes for 2/20 well slides and 40 minutes for 96 well slides.

5. Perform Detection Protocol (VII.C).

Alkaline Tips:

The Alkaline Electrophoresis Solution is a non-buffered system and **temperature control is highly recommended**. If the electrophoresis unit and buffer are pre-cooled to 4°C, performance of electrophoresis at room temperature for 30-40 minutes is acceptable. The ceramic plate maintains the slide temperature. In general, recirculation of the water chamber with pre-chilled water is not necessary but the hoses are provided.

In-house electrophoresis parameters with 200 mM NaOH/1mM EDTA Alkaline Solution, pH>13 at 4°C, has an amperage of ~220 mA. This amperage is increased to ~350 mA with 300 mM NaOH/1mM EDTA at 4°C and electrophoresis increased to 40 minutes for 2 and 20 well slides.

With increases in buffer temperature, the amperage increase is problematic for some power supplies with higher alkali concentrations. If the user prefers a higher alkali concentration, we recommend running at 0.7 volts per cm with a proportional increase in electrophoresis time.

The Slide Tray Overlay is recommended for all Alkaline Electrophoresis. Any variation in buffer height directly affects DNA migration. Increase in buffer height results in slower DNA migration. The Slide Tray Overlay maintains a buffer height of 0.4 cm.

C. Neutral Electrophoresis

1. Neutral Electrophoresis is performed at room temperature. Align the slots of the appropriate slide tray and place on ceramic base platform. Recommend inserting finger slots of slide tray adjacent to cathode (black) electrode.

2. Prepare 1X TBE Buffer. Prepare 1L 1X TBE Buffer as described in Reagent Preparation. Pour 950 ml of buffer into electrophoresis tank.

3. Perform Neutral Comet Quick Reference (VII.B).

4. Perform Neutral Electrophoresis.

- i. Insert slides into tray. Two well slides are locked into position by placing two slides into each position. Recommend always placing

slide with Trevigen logo adjacent to cathode (black) electrode. DNA migrates towards the anode (red) during electrophoresis.

- ii. The 950 ml of 1X TBE buffer should completely cover the slides. Carefully insert Slide Tray Overlay over slide tray by aligning slots. To ensure complete buffer coverage of slides, gradually lower Slide Tray Overlay in a manner similar to lowering a slide coverslip.
- iii. Verify that the 1X TBE buffer is not above the Slide Tray Overlay.
- iv. Set the power supply to 21 V (1 volt per cm). Apply voltage for 10-15 minutes.

5. Perform Detection Protocol (VII.C).

Neutral Tips:

Neutral Electrophoresis uses a buffered system and is performed at room temperature. In-house electrophoresis parameters with 1X TBE, has amperage of ~10 mA when performed at 21V.

Without treatment with Alkaline Buffer, the Neutral CometAssay™ will detect mainly double-stranded breaks (typically a minority population of Alkaline Comet). The Neutral Comet images are different from Alkaline Comet images (VIII. Data Analysis, Figures 2 and 3). After ten minutes of neutral electrophoresis, healthy nucleoids appear rounded but with fifteen minutes, they appear more elongated. A high level of damage observed in Alkaline Comet does not mean damage will be observable with Neutral Comet and longer electrophoresis times will not necessarily improve results.

VII. Comet Assay Protocols

A. Alkaline Comet Quick Reference

The Assay Protocol described below is written as a Quick Reference using Comet Control Cells (cat# 4256-010-CC) for two well slides. Reagents and detailed instructions including reagent preparation are provided with Trevigen's CometAssay™ Kits (See Section XI).

1. Chill Lysis Solution at 4°C for at least 20 minutes before use.
2. Melt LMAgarose in a microwave and cool in a 40°C water bath for at least 20 minutes.
3. Combine 50 µl of CC0 with 500 µl molten LMAgarose (at 40°C) and immediately pipette 50 µl onto two well CometSlide™. Use side of pipette tip to spread agarose/cells over sample area.
4. Repeat step 3 for samples CC1, CC2, and CC3, respectively.
5. Place slides at 4°C in the dark for 15-30 minutes.
6. Immerse slides in Lysis Solution at 4°C, for 30 minutes.
7. Immerse slides in freshly prepared Alkaline Solution, pH>13 for 20 minutes at room temperature, in the dark.
8. Perform Alkaline Electrophoresis as described in VI.B.
9. Perform Detection Protocol as described in VII.C.

B. Neutral Comet Quick Reference

The CometAssay™ may be performed using neutral conditions. Without treatment with Alkaline Buffer, the Neutral CometAssay™ will detect mainly double-stranded breaks. **Please note that the Comet Control Cells (cat# 4256-010-CC) are designed for Alkaline Comet only.**

1. Chill Lysis Solution at 4°C for at least 20 minutes before use.
2. Melt LMAgarose in a microwave and cool in a 40°C water bath for at least 20 minutes.
3. Combine cells at 1 x 10⁵/ml with molten LMAgarose (at 37°C) at a ratio of 1:10 (v/v) and immediately pipette 50 µl onto two well CometSlides™. Use side of pipette tip to spread agarose/cells over sample area.
4. Place slides at 4°C in the dark for 15-30 minutes.
5. Immerse slides in Lysis Solution at 4°C, for 30 minutes.
6. Remove slide from Lysis Buffer, tap excess buffer from slide and gently immerse in 50 ml of 1X TBE buffer for 5 minutes, two times.
7. Perform Neutral Electrophoresis as described in VI.C.
8. Perform Detection Protocol as described in VII.C.

C. Detection Protocol

1. Following electrophoresis, gently tap off excess electrophoresis solution. Gently place slides in dH₂O for 10 minutes and then repeat by moving to new dH₂O.
2. Gently immerse slide in 70% ethanol for 5 minutes.
3. Dry samples on slide warmer or heat block at less than 45°C for ~30 minutes. Make sure slides are completely dry before adding SYBR® Green I.
4. Place 100 µl of diluted SYBR® Green I onto each circle of dried agarose for 30 minutes. Gently tap slide to remove excess SYBR solution. Allow slide to dry completely at room temperature in the dark.
5. View slide by epifluorescence microscopy. (SYBR® Green I has excitation and emission wavelengths of 494 nm and 521 nm, respectively. A fluorescein filter is adequate.)

VIII. Data Analysis

When excited the DNA-bound intercalating dye emits green light. In healthy cells the fluorescence is confined to the nucleoid: undamaged DNA is supercoiled and thus does not migrate very far out of the nucleoid under the influence of an electric current.

Alkaline Comet

In cells that have accrued damage to the DNA, the alkali treatment unwinds the DNA, releasing fragments that migrate from the cell when subjected to an electric field. The negatively charged DNA migrates toward the anode and the extrusion length reflects increasing relaxation of super-coiling, which is indicative of damage. When using alkaline electrophoresis conditions, the distribution of DNA between the tail and the head of the comet is used to evaluate the degree of DNA damage.

To evaluate the degree of damage, Control Cells were processed using the CometAssay™ Electrophoresis System under defined electrophoresis conditions. The healthy control cell population (CC0) was treated with 5 µM Etoposide under

various conditions for less than 1 hour to increase the amount of damage in populations CC1, CC2 and CC3, respectively. Control Cells were harvested immediately following treatment. In the example below, alkaline electrophoresis was performed on two-well slides (4250-050-03) for 30 minutes at 21V (216 mAmps) using a CometAssay™ Kit (4250-050-K). Images (Figure 2) were captured and analyzed using the Loats Associates, Inc Comet Analysis System. In Table 1, data collected for each Control Cell population (lot# 12161M6) is shown.

Figure 2: Alkaline Images of Control Cells

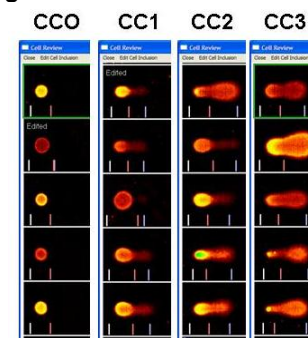


Table 1: Alkaline Analysis of Control Cells

	Well	Counted	TM	%DNA	Length
CCO	1	77	1.65	8.6	18
	2	63	1.19	5.82	12
CC1	1	104	4.65	25.14	38
	2	93	4.58	24	34
CC2	1	66	10.33	42.59	47
	2	82	10.58	38.19	53
CC3	1	81	15.68	55.15	54
	2	66	17.1	58.1	56

Neutral Comet

Jurkat Cells treated with 5 µM Etoposide for 2 hours were either harvested immediately following treatment (D) or allowed to recover 1 hour post-damage with (I) and without a PI₃ Kinase inhibitor (R). In Figure 3 and Table 2, the degree of double-strand damage in Jurkat Cells was evaluated using the CometAssay™ Electrophoresis System under neutral conditions. Repair of double-strand breaks occurs within 1 hour post damage. With the addition of a PI₃ Kinase inhibitor; however, this repair is inhibited. The damage levels remain the same in the presence of the inhibitor. In the example, neutral electrophoresis was performed on twenty-well slides (cat# 4252-200-01) for 10 minutes at 21V (~10 mAmps) using CometAssay™ Kit (cat# 4252-040-K). Images (Figure 3) were captured and analyzed using the Loats Associates, Inc Comet Analysis System. In Table 2, data from each experimental group is shown.

Figure 3: Neutral Images of Treated Jurkat Cells

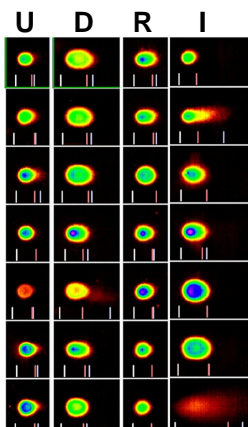


Table 2: Neutral Analysis of treated Jurkat Cells

	Well	Counted	TM	%DNA	Length
Untreated [U]	1	95	0.98	7.66	8
	2	138	0.95	8.34	10
Damage [D]	3	74	2.23	14.15	19
	4	114	2.19	15.57	19
Recovery [R]	5	88	0.63	6.94	10
	6	78	0.34	4.63	6
Inhibitor [I]	7	95	1.94	14.09	19
	8	64	1.93	11.03	16

IX. References

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X. Troubleshooting

PROBLEM	CAUSE	ACTION
No visible Cells.	Loss of cells when pipetting off the supernatant.	Recommend using a vertical rotor when pelleting cells.
Majority of nucleoids in the Untreated Cells group have large comet tails.	Unwanted damage to cells occurred during preparation	Handle cells gently to avoid physical damage. Avoid excessive mixing with pipette. Be sure that no more than 150x g is used.
	Alkaline Electrophoresis solution too hot	Pre chill tank, slide tray, overlay, lid and Alkaline Electrophoresis Solution to 4°C. Use 200 mM NaOH/1 mM EDTA Alkaline Electrophoresis Solution.
Treated Cells show no evidence of comet tail.	Intracellular activity	Keep cells on ice and prepare cell samples immediately before combining with molten LMAgarose. Ensure Lysis Solution was chilled before use.
	LMAgarose too hot	Ensure PBS used is calcium and magnesium free. Cool LMAgarose to 40°C before adding cells.
	Sample was not processed correctly.	Ensure each step in protocol was performed correctly. Failure to lyse, denature in alkali, or to properly perform electrophoresis may generate poor results. With Alkaline Electrophoresis, use Slide Tray Overlay to optimize buffer height.
Comet tails present but not significant in Treated Cells.	Insufficient denaturation in Alkaline Solution.	Increase time in Alkaline Solution up to 1 hour.
	Insufficient electrophoresis time.	Increase time of electrophoresis up to 1 hour for alkaline electrophoresis.
	If Neutral Electrophoresis, double-strand breaks are not present.	Also treat cells with inhibitors of DNA repair to preserve damage for analysis.

PROBLEM	CAUSE	ACTION
Cells in LMAgarose did not remain attached to the CometSlide™.	Electrophoresis solution too hot.	Pre chill tank, slide tray, overlay, lid and Alkaline Electrophoresis Solution to 4°C. Use 200 mM NaOH/1 mM EDTA Alkaline Electrophoresis Solution.
	Cells were not washed to remove medium before combining with LMAgarose or rinsed too harshly.	The pH of medium and carry over serum proteins, etc., can reduce the adherence of the agarose. Resuspend cells in 1X PBS. Gently rinse cells by placing in solution. Never pour rinse solutions over slides.
	Agarose percentage was too low.	Do not increase ratio of cells to molten agarose by more than 1 to 10.
	LMAgarose was not fully set before samples were processed.	Ensure 0.5 mm dried ring due to agarose disc retraction is seen at the edge of the CometSlide area.
	LMAgarose unevenly set on the slide.	Spread the agarose with the side of a pipette tip to ensure uniformity of agarose disc and better adherence.
LMAgarose was not completely melted	Completely solubilize the agarose before transferring to a 40°C heat block.	

XI. Related Products Available From Trevigen

Contact Trevigen for details of our unique product line for studying DNA damage and repair. All of Trevigen's kits include highly qualified enzymes, substrates, buffers, full instructions for use, and a synopsis specific for your kit.

CometAssay™ Kits:

Catalog #	Description	Size
4250-050-ESK	CometAssay™ Starter Kit	each
4250-040-K	CometAssay™	40 samples
4251-050-K	CometAssay™ Silver Kit	50 samples
4254-200-K	CometAssay™ Silver Staining Kit	200 samples
4252-040-K	CometAssay™ Higher Throughput Kit	40 samples
4253-096-K	CometAssay™ Kit 96 Wells	96 samples

FLARE™ Assay Kits:

Catalog #	Description	Damage Recognized	Size
4040-100-FK 4040-100-FM	Fpg Kit	8-oxoguanine, DNA containing formamidopyrimidine moieties	75 samples 100 samples
4055-100-FK 4055-100-FM	T4-PDG Kit	Cis-syn isomers of cyclobutane pyrimidine dimers	75 samples 100 samples
4065-100-FK 4065-100-FM	cv-PDG Kit	Cis-syn and trans-syn isomers of cyclobutane pyrimidine dimers	75 samples 100 samples
4100-100-FK 4100-100-FM	UVDE Kit	Cyclobutane pyrimidine dimers, (6-4) photoproducts	75 samples 100 samples

Catalog #	Description	Damage Recognized	Size
4045-01K-FK 4045-01K-FM	Endonuclease III Kit	Thymine Glycol, 5,6-dihydrothymine, urea, 5-hydroxy-6-hydrothymine, 5,6-dihydro-uracil, alloxan, 5-hydroxy-6-hydrouracil, uracil glycol, 5-hydroxy-5-methylhydantoin, 5-hydroxycytosine, 5-hydroxy-uracil, methyl-tartronylurea, thymine ring saturated or fragmentation product	75 samples 100 samples
4130-100-FK 4130-100-FM	hOGG1 Kit	8-oxoguanine, DNA containing formamidopyrimidine moieties	75 samples 100 samples

Control Cells:

Catalog #	Description	Size
4256-010-CC	CometAssay™ Control Cells	10 assays

PARP Assay Kits:

Catalog #	Description	Size
4667-50-K	PARP Activity Assay Kit	50 tests
4677-096-K	HT Universal Colorimetric PARP Assay w/ Histone Coated Strip Wells	96 samples
4676-096-K	Universal Chemiluminescent PARP Assay w/Histone Coated Strip Wells	96 samples
4667-250-01	Recombinant Human PARP Enzyme	250 µl
4668-100-1	Recombinant Human PARP (High Specific Activity)	1000 Units

Accessories:

Catalog #	Description	Size
4250-050-03	CometSlide™ (2 well)	25 slides
4250-200-03	CometSlide™ (2 well)	100 slides
4252-200-01	CometAssay™ HT Slide (20 well)	10 slides
4253-960-03	96 Well CometSlide™	10 slides
3950-300-02	FLARE™ Slides	100 slides
4867-100	Hydrophobic Coverslips	100 each
4040-100-FM	Fpg FLARE™ Module	>100 samples
4130-100-FM	hOGG1 FLARE™ Module	>100 samples
4045-100-FM	Endonuclease III FLARE™ Module	>100 samples
4055-100-FM	T4-PDG FLARE™ Module	>100 samples
4065-100-FM	cv-PDG FLARE™ Module	>100 samples
4100-050-FM	UVDE FLARE™ Module	>100 samples
3950-075-SP	FLARE™ Sample Prep	>100 samples

The product accompanying this document is intended
for research use only and is not intended for
diagnostic purposes.

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