ANNEXIN V SELECTION GUIDE

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
Annexin V-Alexa Fluor® 350	350	343	441	2
Annexin V-iFluor® 350	350	345	450	3
Annexin V-iFluor® 488	488	491	516	9
Annexin V-FITC	488	491	516	7
Annexin V-Alexa Fluor® 488	488	499	520	8
Annexin V-TRITC	532	544	570	1
Annexin V-Cy3	561	555	569	1
Annexin V-iFluor® 555	561	557	570	8
Annexin V-iFluor® 594	561	588	604	6
Annexin V-Alexa Fluor® 594	561	590	618	4
Annexin V-iFluor® 633	640	640	654	10
Annexin V-iFluor® 647	640	656	670	6
Annexin V-Cy5	640	656	670	6
Annexin V-iFluor® 680	640	684	701	3
Annexin V-Cy5.5	640	684	701	3
Annexin V-iFluor® 700	640	690	713	4
Annexin V-Cy7	750	756	779	10
Annexin V-iFluor® 750	750	757	779	5

* Brightness scale is 1 (dimmest) to 10 (brightest), as a comparison of all included dyes. Brightness is computed as a function of extinction coefficient, quantum yield and correction factor. Experimental brightness additionally dependent upon DOL of reagent used.

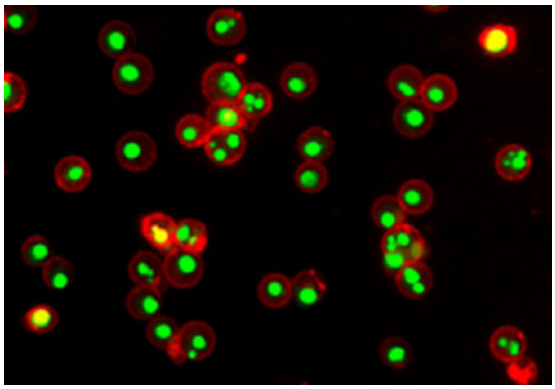

Figure 1. Jurkat cells were treated with 1 µM staurosporine for 4 hours to induce apoptosis. Following treatment, cells were stained with Annexin V-iFluor® 555 conjugate (Cat No. 20072). Nuclei were labeled with Nuclear Green™ DCS1 (Cat No. 17550). Images were acquired on a confocal microscope.

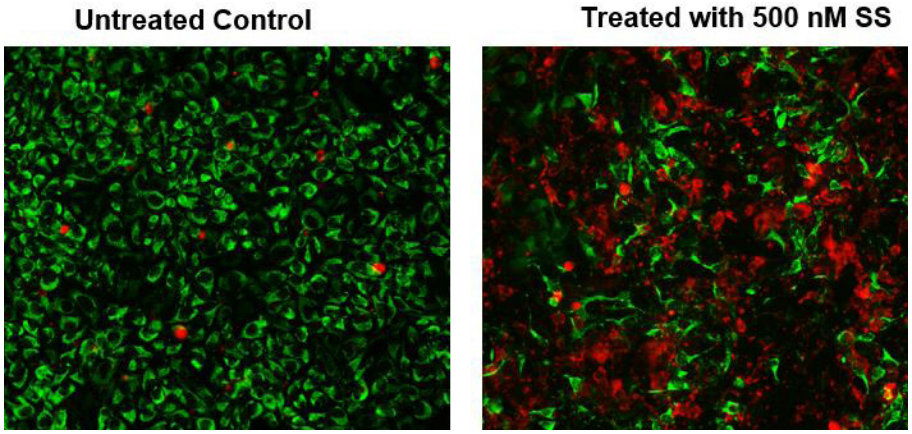

Figure 2. Fluorescence images of HeLa cells. Cells were treated with (Right) or without (Left) 500 nM staurosporine (SS) at 37 oC for 4 hours. Cells were then incubated with Annexin V-Cy5.5 conjugate (Red) and measured using fluorescence microscope with a Cy5 filter. Viable cells were labeled with CellbriteTM Orange (Shown as Green).

AAT Bioquest®

@aatbioquest

ANTIBODY & PROTEIN LABELING SELECTION GUIDE

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
Alexa Fluor® 350	350	343	441	2
AMCA	350	346	434	2
iFluor® 350	350	345	450	3
Marina Blue	350	362	459	2
iFluor® 405	405	403	427	4
iFluor® 430	405	433	498	3
iFluor® 440	405	434	480	2
iFluor® 450	405	451	502	1
Pacific Blue™	405	404	455	5
Alexa Fluor® 488	488	499	520	6
Fluorescein	488	498	517	6
iFluor® 460	488	468	493	4
iFluor® 488	488	491	516	8
iFluor® 514	488	511	527	3
Oregon Green™ 488	488	496	524	7
iFluor® 532	532	537	560	7
iFluor® 546	532	541	557	7
TRITC	532	540	565	6
Alexa Fluor® 555	561	553	568	5
Alexa Fluor® 594	561	590	618	4
Cy3	561	554	568	3
iFluor® 555	561	557	570	7
iFluor® 560	561	560	571	8
iFluor® 568	561	568	587	6
iFluor® Ultra 594	561	586	601	9
iFluor® 594	561	588	604	5
iFluor® 597	561	598	618	3
iFluor® 610	561	610	628	4
Texas Red®	561	586	603	2
Alexa Fluor® 647	640	650	671	9
Alexa Fluor® 680	640	681	704	3
Alexa Fluor® 700	640	696	719	3
Cy5	640	650	669	7
iFluor® 633	640	640	654	9
iFluor® Ultra 647	640	655	670	7
iFluor® 647	640	656	670	5
iFluor® 660	640	663	678	3
iFluor® 665	640	667	692	2

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
iFluor® 670	640	671	682	4
iFluor® 680	640	684	701	2
iFluor® 690	640	685	704	3
iFluor® 700	640	690	713	3
Alexa Fluor® 750	750	752	776	5
Cy7	750	754	778	9
iFluor® A7	750	762	782	3
iFluor® 710	750	717	739	4
iFluor® 720	750	716	740	1
iFluor® 740	750	742	764	5
iFluor® Ultra 750	750	749	773	10
iFluor® 750	750	757	779	4
iFluor® 770	750	777	797	3
iFluor® 780	750	784	808	3
iFluor® 790	750	787	812	2
iFluor® 800	750	801	820	1
iFluor® 810	750	811	822	1
iFluor® 820	750	822	850	1
iFluor® 830	750	830	867	1
iFluor® 840	750	836	879	1
iFluor® 860	750	853	878	1
Indocyanine Green	750	788	813	1

* Brightness scale is 1 (dimmest) to 10 (brightest), as a relative comparison of all included dyes. Brightness is computed as a function of extinction coefficient, quantum yield, and correction factor.

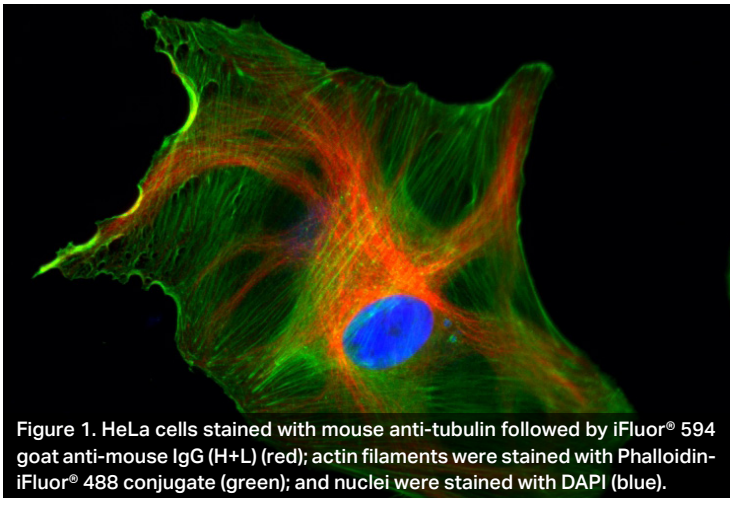

Figure 1. HeLa cells stained with mouse anti-tubulin followed by iFluor® 594 goat anti-mouse IgG (H+L) (red); actin filaments were stained with Phalloidin-iFluor® 488 conjugate (green); and nuclei were stained with DAPI (blue).

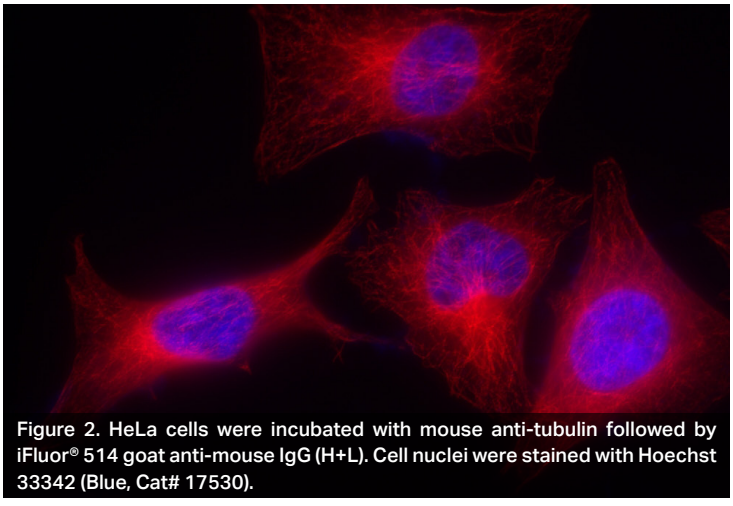

Figure 2. HeLa cells were incubated with mouse anti-tubulin followed by iFluor® 514 goat anti-mouse IgG (H+L). Cell nuclei were stained with Hoechst 33342 (Blue, Cat# 17530).

AAT Bioquest®

@aatbioquest

CALCEIN SELECTION GUIDE

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
Calcein Blue	350	354	441	4
Calcein UltraBlue™	350	359	458	6
CytoCalcein™ Violet 450	405	406	445	7
CytoCalcein™ Violet 500	405	420	505	7
Calcein UltraGreen™	488	492	514	10
Calcein	488	501	521	3
Calcein Orange™	532	531	545	6
Calcein Red™	561	562	576	7
Calcein Deep Red™	640	643	663	7

* Brightness scale is 1 (dimmest) to 10 (brightest), as a comparison of all included dyes. Brightness is computed as a function of extinction coefficient and quantum yield.

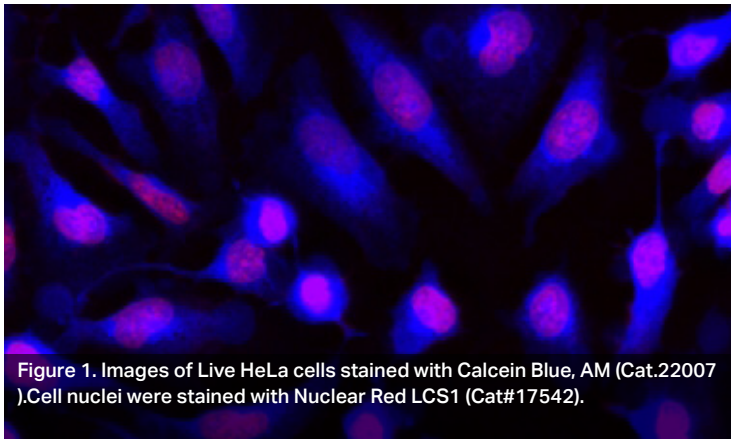

Figure 1. Images of Live HeLa cells stained with Calcein Blue, AM (Cat.22007).Cell nuclei were stained with Nuclear Red LCS1 (Cat#17542).

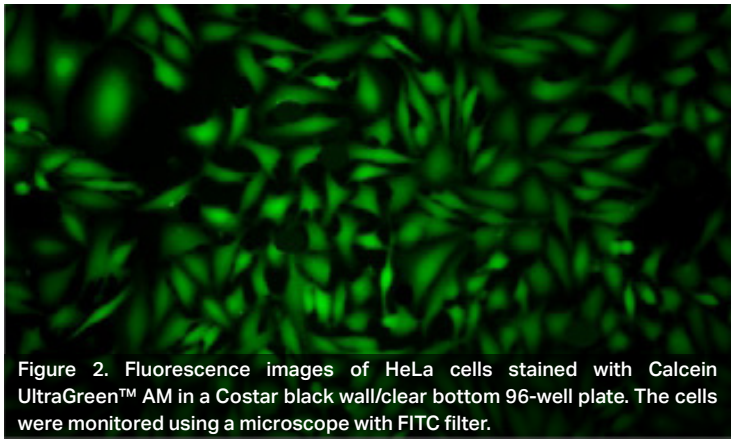

Figure 2. Fluorescence images of HeLa cells stained with Calcein UltraGreen™ AM in a Costar black wall/clear bottom 96-well plate. The cells were monitored using a microscope with FITC filter.

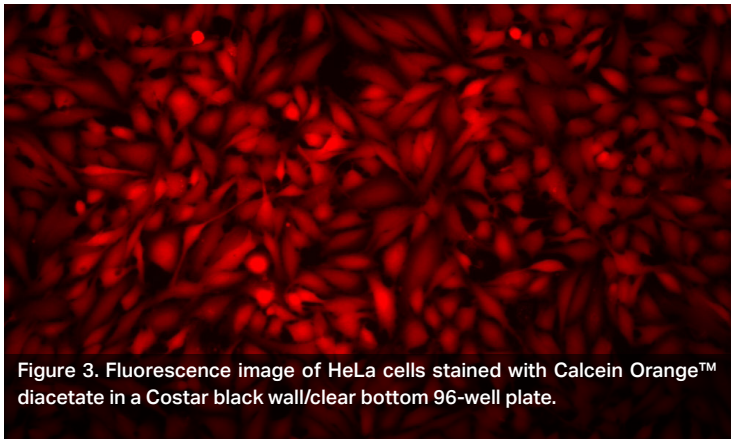

Figure 3. Fluorescence image of HeLa cells stained with Calcein Orange™ diacetate in a Costar black wall/clear bottom 96-well plate.

Figure 4. Images of Live HeLa cells stained with Calcein Red™, AM (Cat.21900). Cell nuclei were stained with Hoechst 33342 (Blue, Cat#17535).

AAT Bioquest®

@aatbioquest

DNA DYES SELECTION GUIDE

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
Nuclear Blue™	350	348	469	10
Hoechst 33342	350	352	454	10
Hoechst 33258	350	352	454	2
DAPI	350	359	457	9
Nuclear Yellow (Hoechst S769121)	350	372	504	7
Nuclear Violet™	405	371	454	6
Acridine Orange	488	490	520	3
Nuclear Green™	488	503	527	8
Nuclear Orange™	488	514	556	5
Propidium Iodide	532	537	618	1
Nuclear Red™	640	631	651	8

* Brightness scale is 1 (dimmest) to 10 (brightest), as a comparison of all included dyes. Brightness is computed as a function of extinction coefficient and quantum yield.

Figure 1. Fluorescence image of HeLa cells fixed with 4% formaldehyde then stained with Phalloidin-iFluor® 594 (Red) and nuclei stain Nuclear Green™ DCS1 (Green).

Figure 2. Fluorescence image of HeLa cells fixed with 4% formaldehyde and then stained with Nuclear Violet™ DCS1.

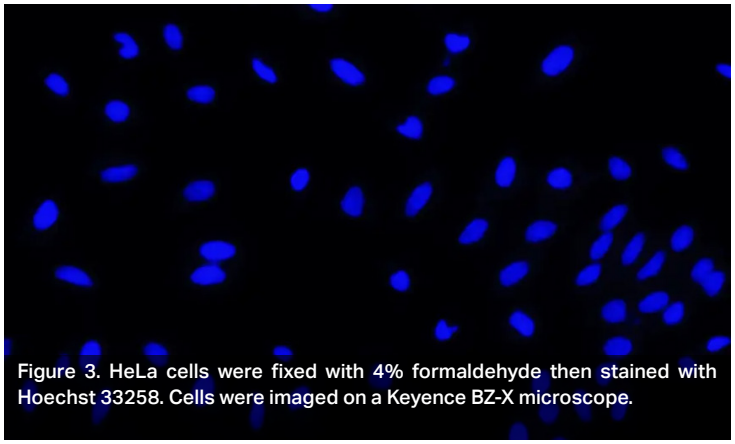

Figure 3. HeLa cells were fixed with 4% formaldehyde then stained with Hoechst 33258. Cells were imaged on a Keyence BZ-X microscope.

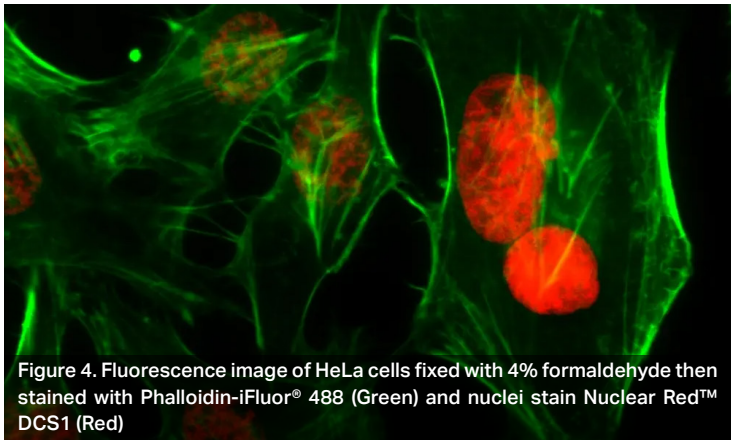

Figure 4. Fluorescence image of HeLa cells fixed with 4% formaldehyde then stained with Phalloidin-iFluor® 488 (Green) and nuclei stain Nuclear Red™ DCS1 (Red)

AAT Bioquest®

@aatbioquest

FLOW CYTOMETRY SELECTION GUIDE

Fluorophore	Laser	Ex (nm)	Em (nm)	Brightness
mFluor™ UV375	350	351	387	6
mFluor™ UV460	350	358	456	4
mFluor™ Violet 450	405	406	445	6
mFluor™ Violet 500	405	410	501	5
mFluor™ Violet 510	405	412	505	5
mFluor™ Violet 540	405	402	535	2
mFluor™ Violet 610	405	421	613	4
Alexa Fluor® 488	488	499	520	7
Fluorescein	488	498	517	6
iFluor® 488	488	491	516	8
mFluor™ Blue 590	488	569	589	3
mFluor™ Blue 620	488	589	616	3
PE	488	566	574	10
PE-Cy5	488	565	666	9
PE-Cy5.5	488	565	671	9
PE-Cy7	488	566	778	9
PE-iFluor® 594	488	566	606	9
PE-iFluor® 750	488	566	778	9
PE-Texas Red®	488	567	615	9
mFluor™ Green 620	532	525	623	1
TRITC	532	540	565	7
Cy3	561	554	568	4
mFluor™ Yellow 630	561	570	632	1
Texas Red®	561	586	603	4
APC	640	651	660	9
APC-Alexa Fluor® 750	640	650	774	7
APC-Cy7	640	651	779	7
APC-iFluor® 750	640	651	780	8
Cy5	640	650	669	7
Cy5.5	640	683	703	5
Cy7	640	754	778	2
Indocyanine Green	640	788	813	1
mFluor™ Red 700	640	680	695	3
mFluor™ Red 780	640	629	767	2

* Brightness scale is 1 (dimmest) to 10 (brightest), as a comparison of all included dyes. Brightness is computed as a function of extinction coefficient and quantum yield. Actual performance will vary due to instrumentation settings. Guide above was developed on a Cytek flow cytometer.

LIVE OR DEAD KITS SELECTION GUIDE

Live or Dead™ Fixable Dead Cell Staining Kits

Cat. no.	Kit Color	Laser	Filter	Ex (nm)	Em (nm)	Channel
22600	Blue	UV (350 nm)	450/40 nm	353	442	Pacific Blue
22502	Orange Fluorescence with 405 nm Excitation	Violet (405 nm)	525/50 nm	398	550	Pacific Orange
22501	Green Fluorescence with 405 nm Excitation	Violet (405 nm)	525/40 nm	408	512	AmCyan
22500	Blue Fluorescence with 405 nm Excitation	Violet (405 nm)	450/40 nm	410	450	Pacific Blue
22601	Green	Blue (488 nm)	530/30 nm	498	521	FITC
22599	Red Fluorescence Optimized for Flow Cytometry	Blue/Green (488/532 nm)	610/20 nm	523	617	Custom
22602	Orange	Blue/Green (488/532 nm)	575/26 nm	547	573	PE
22603	Red	Yellow (561 nm)	610/20 nm	583	603	PE-Texas Red
22604	Deep Red	Red (640 nm)	660/20 nm	649	660	APC
22605	NIR Fluorescence	Red (640 nm)	789/60 nm	749	775	APC-Cy7

* All Live or Dead™ Fixable Dead Cell Staining Kits are ideal for flow cytometry.

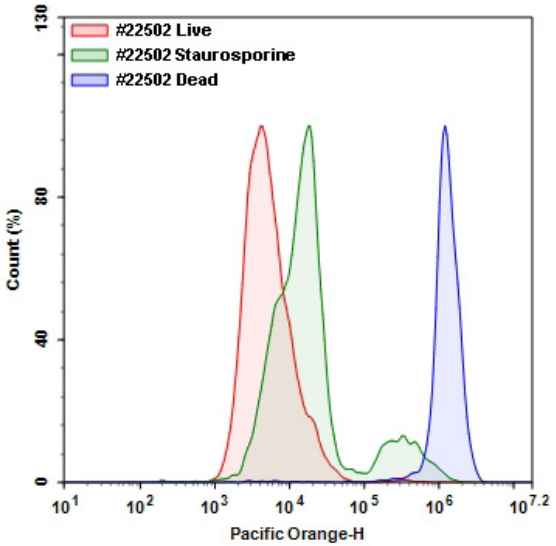

Figure 1. Jurkat cell viability detected by Live or Dead™ Fixable Dead Cell Staining Kit (Cat# 22502). Cells were treated, stained with Stain It™ V550, fixed in 3.7% formaldehyde, then analyzed by flow cytometry. Live (red), staurosporine treated (green) and heat-treated (blue) cells were distinguished with Pacific Orange channel.

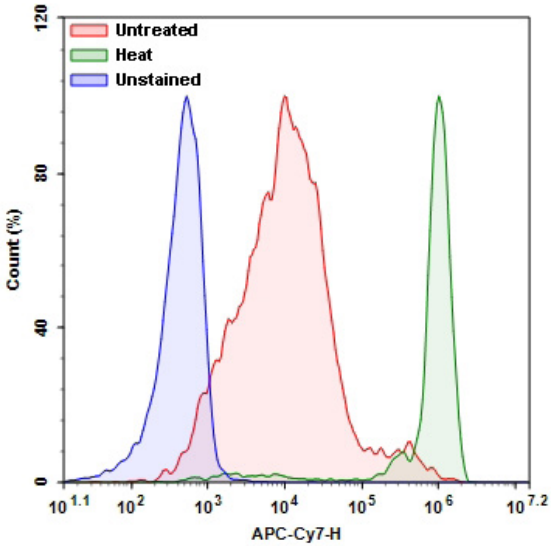

Figure 2. Jurkat cell viability detected by Live or Dead™ Fixable Dead Cell Staining Kits (Cat#22605). Cells were treated, stained with Stain It™ NIR, fixed in 3.7% formaldehyde, then analyzed by flow cytometry. Live (red), heat-treated (green) and unstained (blue) cells were distinguished with APC-Cy7 channel.

Dual-Excitation Cell Viability Kits

Cat. no.	Kit	Cell Type	Probes	Ex (nm)	Em (nm)	Live Color	Dead Color	Platforms
22788	Live or Dead™ Cell Viability Assay Kit	Eukaryotic	Cellbrite™ Red Nuclear Blue™ DCS1	613 348	631 469	Red	Blue	Fluorescence Microscope, Microplate, or Flow Cytometry
22789	Live or Dead™ Cell Viability Assay Kit	Eukaryotic	CytoCalcein™ Green Propidium Iodide	494 537	514 618	Green	Red	Fluorescence Microscope, Microplate, or Flow Cytometry
22411	MycoLight™ Fluorescence Live/Dead Bacterial Imaging Kit	Bacterial	MycoLight™ 520 Propidium Iodide	488 537	530 618	Green	Red	Fluorescence Microscope
22476	Live or Dead™ Yeast CFDA-AM/Propidium Iodide Vitality Kit	Yeast	CFDA-AM Propidium Iodide	498 537	517 618	Green	Red	Flow Cytometry

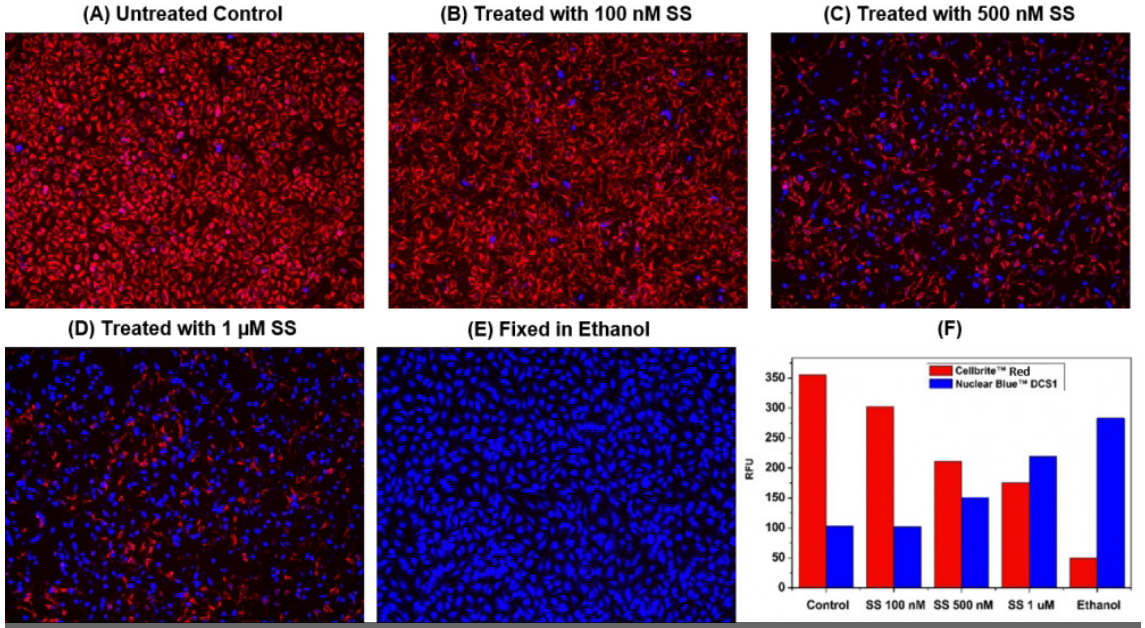

Figure 1. HeLa cells labeled with Live or Dead™ Cell Viability Assay Kit (Cat#22788). Cells were treated with 0-1 μM staurosporine at 37°C for 4 hrs (A-D), or fixed in ethanol (E), then incubated with dye-loading solution for 1 hr. Signal was measured using fluorescence microscope with Texas Red/Cy5 filter for viable cells (Red) and DAPI for necrotic cells (Blue),

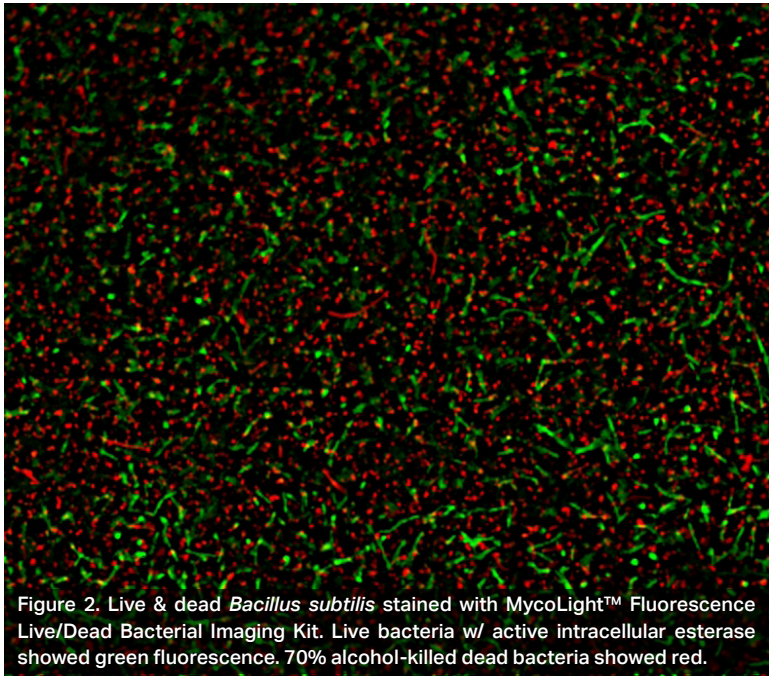

Figure 2. Live & dead *Bacillus subtilis* stained with MycoLight™ Fluorescence Live/Dead Bacterial Imaging Kit. Live bacteria w/ active intracellular esterase showed green fluorescence. 70% alcohol-killed dead bacteria showed red.

PHALLOIDIN SELECTION GUIDE

Cat. no.	Conjugate	MW	Laser	Filter	Ex (nm)	Em (nm)	Brightness
23150	XFD350	~1100	355	DAPI	343	441	1
23110	iFluor® 350	~1300	355	DAPI	345	450	2
23100	AMCA	~1100	355	DAPI	346	434	1
23111	iFluor® 405	~1400	405	DAPI	403	427	4
23115	iFluor® 488	~1400	488	FITC	491	516	8
23101	Fluorescein	~1100	488	FITC	498	517	5
23153	XFD488	~1300	488	FITC	499	520	6
23102	Tetramethylrhodamine	~1300	488	TRITC/Cy3	498	517	1
23116	iFluor® 514	~1800	488	TRITC	511	527	3
23117	iFluor® 532	~1800	532	TRITC	537	560	7
23119	iFluor® 555	~1300	532	TRITC	557	570	7
23122	iFluor® 594	~1600	561	Texas Red	588	604	10
23158	XFD594	~1600	561	Texas Red	590	618	8
23125	iFluor® 633	~1703.99	561	Texas Red	640	654	9
23127	iFluor® 647	~1408.65	640	Cy5	656	670	6
23128	iFluor® 680	~2000	640	Cy5.5	684	701	4
23129	iFluor® 700	~3000	640	Cy5.5	690	713	5
23130	iFluor® 750	~3300	750	Cy7	757	779	3
23131	iFluor® 790	~2800	750	Cy7	787	812	2

* Brightness scale is 1 (dimmest) to 10 (brightest), as a comparison of all included dyes. Brightness is computed as a function of extinction coefficient, quantum yield, and correction factor.

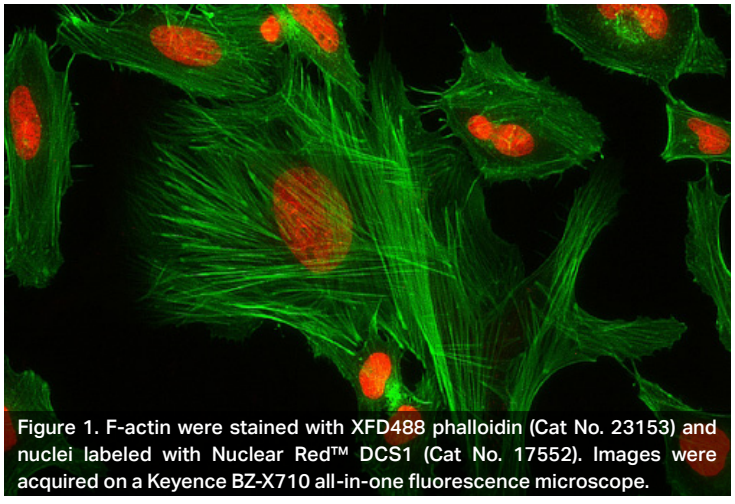

Figure 1. F-actin were stained with XFD488 phalloidin (Cat No. 23153) and nuclei labeled with Nuclear Red™ DCS1 (Cat No. 17552). Images were acquired on a Keyence BZ-X710 all-in-one fluorescence microscope.

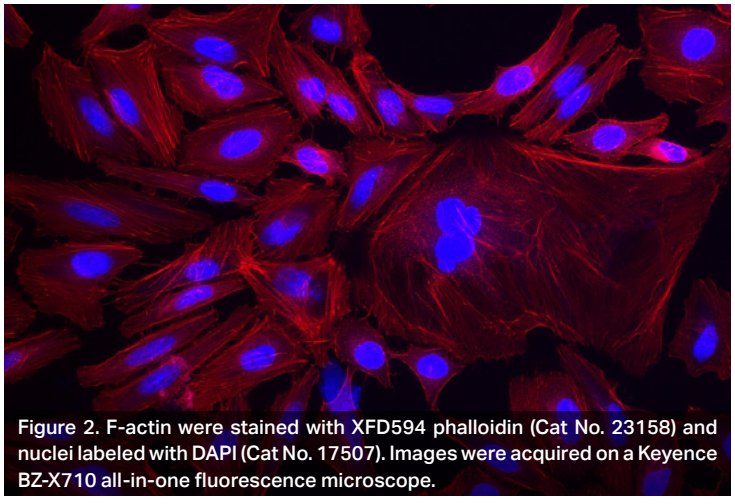

Figure 2. F-actin were stained with XFD594 phalloidin (Cat No. 23158) and nuclei labeled with DAPI (Cat No. 17507). Images were acquired on a Keyence BZ-X710 all-in-one fluorescence microscope.