



# The GeneBLAzer<sup>®</sup> System

*Open architecture for an enabling high-throughput screening technology*

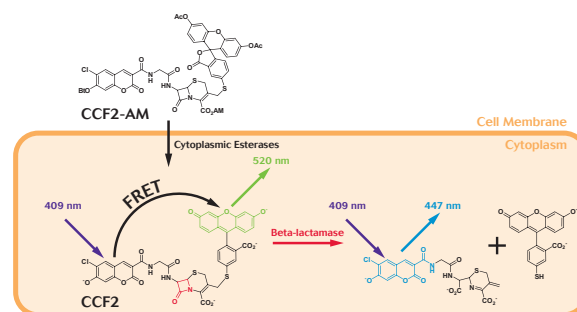
**P**reviously, the use of the GeneBLAzer<sup>®</sup> System was only available through licensing relationships. Invitrogen is now making this technology available to everyone to facilitate an open architecture for cell-based assay development in drug discovery.

## Beta-lactamase reporter technology for cell-based assays in drug discovery

The cornerstone of the GeneBLAzer<sup>®</sup> System is a membrane-permeant FRET-based substrate. Once in the cell, cytoplasmic esterases trap the negatively charged substrate in the cell. BLA expression is quantified by measuring the ratio of blue (product) to green (substrate) fluorescence. No other reporter system offers viable cell staining, compatibility with fluorescence-activated cell sorting, ratiometric readout, and an optimized platform for HTS.

### Key benefits

- Ratiometric readout normalizes for variations in cell number and substrate concentration, resulting in high Z'-factor values
- Viable cell loading
- Rapid assay development—Efficiently develop stably-transfected clonal cell lines using flow cytometry to find the optimal clone to match your criteria
- Ultra-miniaturizable to < 2  $\mu$ l



## The GeneBLAzer<sup>®</sup> System comprises an array of tools and solutions. These include:

- GeneBLAzer<sup>®</sup> substrate loading kits
- Ready-to-screen, validated assays for specific targets, including nuclear receptors and GPCRs
- Master Cell Lines engineered with various response elements upstream of BLA for accelerated assay development
- CellSensor<sup>™</sup> lines with reporter constructs linked to therapeutically important signal transduction pathways
- Opportunity for technology and research collaborations

### Selected references

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## GeneBLazer® Beta Lactamase Gene Reporter System—Array of tools for drug discovery

	Target class	Target	Host cell
Validated assays, ready to screen	GPCRs	Muscarinic receptor 1	Jurkat
		5HT1A (serotonin)	CHO K-1
		AVPR2 (vasopressin)	CHO K-1
		D1 (dopamine)	CHO K-1
	Nuclear receptors	Mineralocorticoid receptor	HEK 293T
		Glucocorticoid receptor	HEK 293T
		Aryl-hydrocarbon receptor	LS-180
		Androgen receptor	GripTite™ 293
		PPAR $\gamma$	HEK 293H
		Estrogen receptor- $\alpha$	GripTite™ 293
	Estrogen receptor- $\beta$	GripTite™ 293	
	Master Cell Line	Second messenger	Host cell
Validated Master Cell Lines for GPCR assay development	NFAT- <i>bla</i>	Ca <sup>2+</sup>	FreeStyle™ 293F
	NFAT- <i>bla</i>	Ca <sup>2+</sup>	Jurkat
	NFAT- <i>bla</i>	Ca <sup>2+</sup>	CHO K-1
	CRE- <i>bla</i>	cAMP	FreeStyle™ 293F
	CRE- <i>bla</i>	cAMP	Jurkat
	CRE- <i>bla</i>	cAMP	CHO K-1
	Construct	Utility	Host cell
Validated positive control cell lines	CMV- <i>bla</i>	Positive control for adherent cells	CHO K-1
	CMV- <i>bla</i>	Positive control for suspension cells	Jurkat

	Product	Size	Cat. no.
Beta-lactamase substrates and loading kits	CCF2-AM	5 mg	K1023
		20 mg	K1024
	CCF2-AM Loading Kit	200 $\mu$ g CCF2-AM	K1032
		5 mg	K1025
	CCF4-AM	5 mg	K1028
		20 mg	K1029
	CCF4-AM Loading Kit	200 $\mu$ g CCF4-AM	K1095
		1 mg CCF4-AM	K1096
		5 mg CCF4-AM	K1030
	CCF2 Free Acid	100 $\mu$ g	K1034
1 mg		K1027	

CellSensors™ for kinase pathways			
Near-term products in development	AP-1	SBE	FHRE
	NF- $\kappa$ B	ISRE	TCF/LEFRE
	c-fos	GAS	E2FRE
	CRE	Myc	p53RE
	NFAT	SRE	HRE

### Later in 2004 look for:

- New GeneBLazer® substrates with new functionality
- New validated assays and CellSensor™ cell lines

GeneBLazer® technologies are being used to develop new cell lines for drug discovery and provide custom assay development services, and are being integrated into large collaborative research projects. Please contact your account manager for more information.



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