Staphylococcus aureus, S. aureus 8325-4 (Xen8.1)

Product Number: 119239

Material Provided: 1 Agar Plate

Storage Conditions: -80°C

Genetic Characteristics

Staphylococcus aureus-Xen8.1 was derived from the parental strain *S. aureus* 8325-4. *S. aureus*-Xen8.1 was engineered through transposition of Tn4001 luxABCDE on plasmid pXen-5. Xen8.1 possesses a single stable copy of the modified P. luminescens lux operon that was inserted in the δ-toxin coding region in the RNAIII transcript downstream of the agr P3 promoter on the bacterial chromosome.

Growth Characteristics

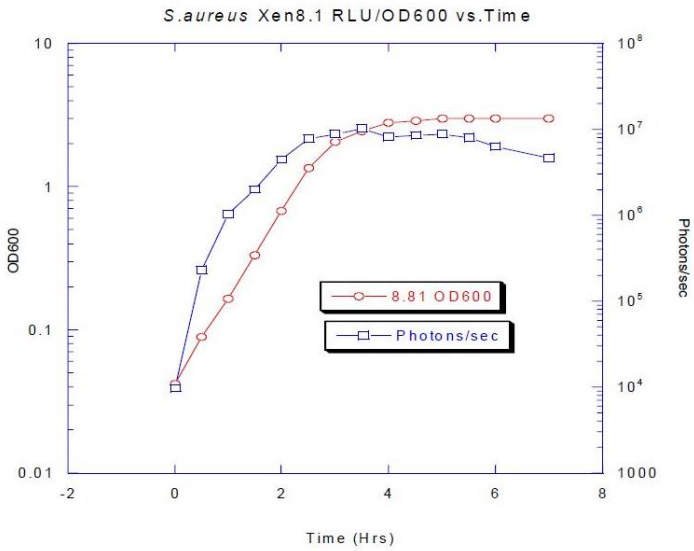
S. aureus-Xen8.1 grows well in Luria Bertani (LB) medium at 37°C under ambient aeration. *S. aureus*-Xen8.1 may also be grown selectively on LB or BHI agar containing 200µg/mL kanamycin.

Colonial Morphology

On LB agar, *S. aureus*-Xen8.1 appears as small (~1.5mm), cream-colored, opaque, smooth, circular colonies.

Growth Curve

S.aureus-Xen8.1 displays peak bioluminescence during early log-phase growth. Log-phase growth can be achieved after 1 to 1.5 hours of subculture in LB broth at 37°C, shaking at 150-200 rpm. For these broth culture conditions, an absorbance measurement at 600nm (against a LB blank) of 0.6 is roughly equivalent to $5x10^8$ cfu/mL of *S. aureus*-Xen8.1 and the relative light intensity is 0.9 photons/sec/cell.



Virulence Factors

Hemolysins: **β**-hemolytic on TSA + 5% sheep blood

Capsule: literature cites that parental lacks a capsule (CP5 negative), cap5 mutant FEMS Microbiol Lett 1999 Jan 1;170(1):97-103.

DNAse: Negative

NaCl: Tolerant via growth Mannitol Salts Agar

Coagulase: Positive in 24hrs

Biochemical Profile

A biochemical profile was obtained for S. aureus-Xen8.1 using the api 20 STAPH system available from bioMérieux.

Sugar Utilization	
D-Glucose	+
D-Fructose	+
D-Mannose	+
Maltose	+
Lactose	+
Trehalose	+
D-Mannitol	+
Xylitol	-
Raffinose	-
Xylose	-
D-Melibiose	+
Sucrose	+

Other Tests	
Nitrate Reduction	+
Alkaline Phosphatase	+
Voges Proskauer	-
□-methyl-D-glucoside	-
□-acetyl-glucoside	+
Arginine dihydrolase	+
Urease	+

Antibiotic Susceptibility

Disk Diffusion Data Disk diffusion tests were performed according to methods outlined in the NCCLS Approved Standard M2-A7.

Kirby-Bauer Disk Diffusion Test	
Sensitive to:	Resistant to:
Carbenicillin 100	Kanamycin 30
Gentamicin 20	
Penicillin G 10U	
Vancomycin 30	

MIC and MBC Data

MIC and MBC were determined using the macro-dilution methods specified in the NCCLS Approved Standard M7-A5.

NCCLS Macrodilution MIC/MBC		
Antibiotic	MIC (□g/mL)	MBC (□g/mL)
Ceftriaxone	>32	NA
Ciprofloxacin	>8.0	NA
Erythromycin	1.0	1.0
Gentamicin	2.0-4.0	4.0-8.0
Kanamycin	>125	NA
Penicillin G	0.013-0.063	0.063-0.125
Tetracycline	0.25	0.5 (trailing endpoint)

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