THE ESSENTIALS OF
LIFE SCIENCE RESEARCH
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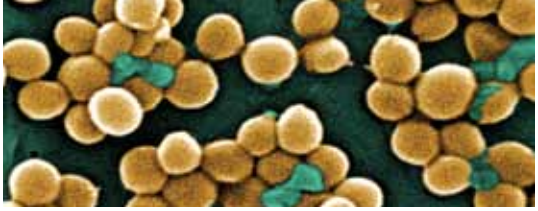

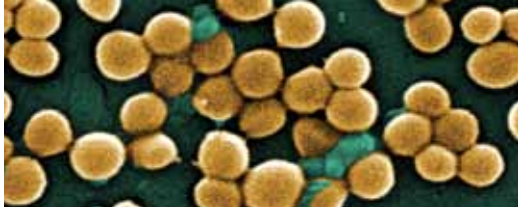

ATCC™

METHICILLIN-RESISTANT AND METHICILLIN-SENSITIVE RESEARCH MATERIALS

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacterium responsible for difficult-to-treat infections in humans. MRSA is by definition a strain of *Staphylococcus* that is resistant to a large group of antibiotics called the beta-lactams, which include the penicillins and the cephalosporins. Strains of *Staphylococcus* resistant to methicillin first appeared in hospitals soon after the commonly prescribed antibiotic began use as an infection treatment in the 1960s. MRSA is an opportunistic pathogen and the major causative agent of numerous hospital and community acquired infections.

Community-associated MRSA or CA-MRSA began showing up in communities in the past decade. It is responsible for many skin and soft tissue infections as well as a serious form of pneumonia. The community-acquired MRSA USA 300 clone is a major source of community acquired infections in the U.S., Canada and Europe. FPR3757 is a multidrug-resistant USA 300 strain that has a pulsed-field type USA 300-0114 and sequence type ST8.[1] ATCC offers both the culture (ATCC® BAA- 1556™) and the genomic DNA (ATCC® BAA-1556D-5) from the fully-sequenced strain (GenBank® CP000255).

Staphylococcus aureus subsp. *aureus* strain MRSA 252 is a hospital acquired strain that was isolated in the United Kingdom in the late 1990s. ATCC offers the strain (ATCC® BAA-1720™) from the fully-sequenced organism (GenBank® B571856.1). *Staphylococcus aureus* subsp. *aureus* strain MSSA 476 is a hyper-virulent community-acquired methicillin-susceptible (MSSA) strain also isolated in the United Kingdom. The fully-sequenced strain (ATCC® BAA-1721™) is now available (GenBank® BX571857.1).

Staphylococcus epidermidis has emerged as a causative agent of infections often associated with implanted medical devices. *Staphylococcus epidermidis* strain RP62A (ATCC® 35984™) is a slime-producing strain isolated during an outbreak of intravascular catheter-associated sepsis in Memphis, Tennessee.[2, 3] RP62A is capable of biofilm formation, which contributes to its pathogenicity in infections caused by intravascular devices.[4] ATCC offers both the culture (ATCC® 35984™) and the genomic DNA (ATCC® 35984D-5) from the fully-sequenced strain (GenBank® CP000029).

Methicillin-Resistant *Staphylococcus* (MRS) Research Materials

Description	Designation	ATCC® No.	Significance	Body Isolation
Staphylococcus aureus	308118L	BAA-811™	1993	Human nasal swab
Staphylococcus aureus	HFH-29568	BAA-1680™	USA300/*pvl* +/MI 2003	Human skin
Staphylococcus aureus	HFH-29994	BAA-1681™	USA100/*pvl*-/MI 2003	Human nares
Staphylococcus aureus	HFH-29753	BAA-1682™	USA100/*pvl*-/MI 2003	Human aspirate
Staphylococcus aureus	HFH-30364	BAA-1683™	USA400/*pvl*+/MI 2004	Human abscess
Staphylococcus aureus	HFH-30522	BAA-1684™	USA500/*pvl*-/MI 2004	Human sputum
Staphylococcus aureus	HFH-30495	BAA-1685™	USA600/*pvl*-/MI 2004	Human skin
Staphylococcus aureus	HFH-30106	BAA-1686™	Not USA100-1100/*pvl*-/MI 2004	Human nares
Staphylococcus aureus	HFH-30008	BAA-1687™	Not USA100-1100/*pvl*-/MI 2003	Human sputum
Staphylococcus aureus	HFH-30032	BAA-1688™	Not USA100-1100/*pvl*+/MI 2003	Human wound
Staphylococcus aureus	HFH-30676	BAA-1689™	USA500/*pvl*-/MI 2004	Human skin
Staphylococcus aureus	HFH-29744	BAA-1690™	Not USA100-1100/*pvl*-/MI 2003	Human wound
Staphylococcus aureus	HFH-30137	BAA-1691™	Not USA100-1100/*pvl*-/MI 2003	Human urine
Staphylococcus aureus	HFH-30123	BAA-1692™	USA100/*pvl*-/MI 2004	Human sinus
Staphylococcus aureus	HFH-30172	BAA-1694™	Not USA100-1100/*pvl*-/MI 2004	Human wound
Staphylococcus aureus	HFH-30239	BAA-1695™	Not USA100-1100/*pvl*-/MI 2004	Human sputum

Methicillin-Resistant *Staphylococcus* (MRS) Research Materials (cont.)

Description	Designation	ATCC® No.	Significance	Body Isolation
Staphylococcus aureus	HFH-30102	BAA-1696™	USA400/*pvl*+/MI 2004	Human wound
Staphylococcus aureus	HFH-30493	BAA-1697™	Not USA100-1100/*pvl*-/MI 2004	Human skin
Staphylococcus aureus	HFH-30626	BAA-1698™	Not USA100-1100/*pvl*-/MI 2004	Human wound
Staphylococcus aureus	HFH-30820	BAA-1699™	USA100/*pvl*-/MI 2004	Human maxilla
Staphylococcus aureus	HFH-33798	BAA-1700™	Not USA100-1100/*pvl*+/MI 2004	Human wound
Staphylococcus aureus	HFH-31076	BAA-1701™	Not USA100-1100/*pvl*-/MI 2004	Human wound
Staphylococcus aureus	MW2	BAA-1707™	Fully sequenced genome, PFGE Type USA400/*pvl*+	Female patient
Staphylococcus aureus	HIP10787	BAA-1708™	mupA positive QC strain	
Staphylococcus aureus	94:1013	BAA-1747™	USA1000/*pvl*+	Human subject
Staphylococcus aureus	96:281	BAA-1750™	USA200/*pvl*-	Human subject
Staphylococcus aureus	148-99	BAA-1751™	USA600/*pvl*-	Human subject
Staphylococcus aureus	182-99	BAA-1752™	USA400/*pvl*+	Human subject
Staphylococcus aureus	18626	BAA-1753™	USA100/*pvl*-	Human subject
Staphylococcus aureus	0:50	BAA-1754™	USA600/*pvl*-	Human subject
Staphylococcus aureus	0-25-4	BAA-1755™	USA700/*pvl*-	Human subject
Staphylococcus aureus	0-25-37	BAA-1756™	USA300-0114/*pvl*+	Human subject
Staphylococcus aureus	1-1-81	BAA-1757™	USA400/*pvl*+	Human subject
Staphylococcus aureus	1-1-493	BAA-1758™	USA800/*pvl*-	Human subject
Staphylococcus aureus	107-03	BAA-1760™	USA200/*pvl*-	Human subject
Staphylococcus aureus	GA201	BAA-1761™	USA100/*pvl*-	Human subject
Staphylococcus aureus	GA217	BAA-1762™	USA300 (SCCmecIvb)/*pvl*+	Human subject
Staphylococcus aureus	GA229	BAA-1763™	USA500/*pvl*-	Human subject
Staphylococcus aureus	7031	BAA-1764™	USA1100/*pvl*+	Human subject
Staphylococcus aureus	8-03	BAA-1766™	USA700/*pvl*-	Human subject
Staphylococcus aureus	510-04	BAA-1767™	USA1100/*pvl*+	Human subject
Staphylococcus aureus	27-05	BAA-1768™	USA800/*pvl*-	Human subject
Staphylococcus aureus	CA46	BAA-1769™	USA1000/*pvl*-	Human subject
Staphylococcus aureus	398-05	BAA-1770™	USA1000/*pvl*+	Human subject
Staphylococcus aureus	N4151	BAA-1771™	USA800/*pvl*-	Human subject
Staphylococcus aureus subsp. *aureus*	328	33591™		
Staphylococcus aureus subsp. *aureus*	1063	33592™	New York City	Blood
Staphylococcus aureus subsp. *aureus*	1217	33593™	New York City	Blood
Staphylococcus aureus subsp. *aureus*	F-182	43300™	Kansas	Clinical isolate
Staphylococcus aureus subsp. *aureus*	Mu3	700698™	Japan, 1996	Sputum from a lung cancer patient
Staphylococcus aureus subsp. *aureus*	Mu50	700699™	Fully sequenced genome	Pus & debrided tissue at surgical incision
Staphylococcus aureus subsp. *aureus*	2947	700787™	Port Chester, NY, 1998	Blood culture
Staphylococcus aureus subsp. *aureus*	406	700788™	Port Chester, NY, 1998	Dialysis catheter
Staphylococcus aureus subsp. *aureus*	12478	700789™	Port Chester, NY, 1997	Human blood
Staphylococcus aureus subsp. *aureus*	E2125	BAA-38™	Denmark	Human blood
Staphylococcus aureus subsp. *aureus*	HUSA304	BAA-39™	Hungary, 1993	Human nose
Staphylococcus aureus subsp. *aureus*	CPS22	BAA-40™	Lisbon, Portugal, 1994	Nasal cavity
Staphylococcus aureus subsp. *aureus*	NYBK2464	BAA-41™	Hospital, New York City, 1994	
Staphylococcus aureus subsp. *aureus*	HDE288	BAA-42™	Hospital, Lisbon, Portugal, 1996	Child in pneumology ward
Staphylococcus aureus subsp. *aureus*	HSJ216	BAA-43™	Hospital, Lisbon, Portugal, 1998	
Staphylococcus aureus subsp. *aureus*	HPV107	BAA-44™	Hospital, Lisbon, Portugal	
Staphylococcus aureus subsp. *aureus*	USA 300, FPR3757	BAA-1556™	USA 300	Wrist abscess, HIV+

Methicillin-Resistant *Staphylococcus* (MRS) Research Materials (cont.)

Description	Designation	ATCC® No.	Significance	Body Isolation
Staphylococcus aureus subsp. *aureus*	TCH1516	BAA-1717™	Fully sequenced genome, USA300/HOU-MR/ Texas	Adolescent patient with severe sepsis
Staphylococcus aureus subsp. *aureus*	MRSA252	BAA-1720™	Fully sequenced genome	Hospital acquired
Staphylococcus epidermidis	255-01B	29887™		
Staphylococcus epidermidis	RP62A	35984™	Fully sequences genome, Tennessee	Catheter sepsis
Staphylococcus epidermidis	CCF 15990	51625™	Cleveland, OH	Human blood
Staphylococcus epidermidis	1191	700562™	Richmond, VA, 1997	Human blood
Staphylococcus epidermidis	1194	700563™	Richmond, VA, 1997	Human blood
Staphylococcus epidermidis	4477-2	700565™	Richmond, VA, 1997	Human blood
Staphylococcus epidermidis	4483	700566™	Richmond, VA, 1997	Human blood
Staphylococcus epidermidis	3173-1	700567™	Richmond, VA, 1996	Human blood
Staphylococcus epidermidis	3173-2	700568™	Richmond, VA, 1996	Human blood
Staphylococcus epidermidis	3173-3	700569™	Richmond, VA, 1996	Human blood
Staphylococcus epidermidis	3176	700570™	Richmond, VA, 1996	Human blood
Staphylococcus hominis subsp. *hominis*	CCF 16471	51624™	Cleveland, OH	Human blood

Methicillin-Sensitive *Staphylococcus* (MSS) Research Materials

Description	Designation	ATCC® No.	Significance	Body Isolation
Staphylococcus aureus	96:308	BAA-1749™	USA900/*pvl*-	Human subject
Staphylococcus aureus	102-04	BAA-1765™	USA1200/*pvl*-	Human subject
Staphylococcus aureus subsp. *aureus*	FDA 209	6538™		Human lesion
Staphylococcus aureus subsp. *aureus*	PCI 1241	13150™		Feces
Staphylococcus aureus subsp. *aureus*	PCI 1158	14775™		Hospital personnel
Staphylococcus aureus subsp. *aureus*	PCI 1159	14776™		Hospital personnel
Staphylococcus aureus subsp. *aureus*	PCI 1217	14993™		
Staphylococcus aureus subsp. *aureus*	Wichita	29213™		Wound
Staphylococcus aureus subsp. *aureus*	CDC 73-57501	29247™		
Staphylococcus aureus subsp. *aureus*	TCH959	BAA-1718™	USA300	Buttock abscess
Staphylococcus aureus subsp. *aureus*	MSSA476	BAA-1721™	United Kingdom	Hyper virulent community
Staphylococcus epidermidis	15290	700583™	Richmond, VA 1997	Human blood
Staphylococcus hominis	4477-1	700564™	Richmond, VA 1997	Human blood

Methicillin-Resistant *Staphylococcus* (MRS) Genomic DNA (5ug)

Description	Designation	ATCC® No.	Significance
Staphylococcus aureus subsp. *aureus*	328	33591D-5	
Staphylococcus aureus subsp. *aureus*	Mu3	700698D-5	Fully sequenced genome
Staphylococcus aureus subsp. *aureus*	Mu 50	700699D-5	Fully sequenced genome
Staphylococcus aureus subsp. *aureus*	USA 300, FPR3757	BAA-1556D-5	Fully sequenced genome
Staphylococcus aureus subsp. *aureus*	TCH1516	BAA-1717D-5	Fully sequenced genome
Staphylococcus epidermidis	RP62A	35984D-5	Fully sequenced genome

Methicillin-Sensitive *Staphylococcus* (MSS) Genomic DNA (5ug)

Description	Designation	ATCC® No.	Significance
Staphylococcus aureus subsp. *aureus*	FDA 209	6538D-5	
Staphylococcus aureus subsp. *aureus*	TCH959	BAA-1718D-5	Fully sequenced genome

References

1. Diep BA et al. 2006. Complete genome sequence of USA 300, an epidemic clone of community-acquired methicillin-resistant *Staphylococcus aureus*, Lancet 367(9512):731-739.
2. Christensen GD et al. 1982. Adherence of slime-producing strains of *Staphylococcus epidermidis* to smooth surfaces. Infect. Immun. 37:318-326.
3. Christensen GD. 1985. Adherence of coagulase-negative staphylococci to plastic tissue culture plates: a quantitative model for the adherence of Staphylococci to medical devices. J. Clin. Microbiol. 22:996-1006.
4. Hussain M et al. 1997. A 140-kilodalton extracellular protein is essential for the accumulation of *Staphylococcus epidermidis*. Infect. Immun. 65(2):519-24.

Image of *Staphylococcus aureus* subsp. *aureus* courtesy of Janice Carr, CDC, Atlanta, GA.

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