

# Supporting Information

for

## Structure-Guided Discovery of New Deaminase Enzymes

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**Physical Substrate Library.** The following compounds were tested for deamination with all purified enzymes: melamine, cytosine, thioguanine, guanine, adenine, 7-methylguanine, cytidine, 2'-deoxycytidine, pterin, biopterin, neopterin, guanosine, adenosine, 8-mercaptoguanine, 2,6-diaminopurine, xanthine, 8-oxoguanine, urate, 9-methylguanine, 6-chloropurine, 8-oxoadenine, isopentenyladenine, *N*6-methyladenine, 1-methyladenine, *cis*-zeatin, *trans*-zeatin, benzyladenine, 2-amino-6-benzylthiopurine, *N*-ethenopurine, *N*6-acyladenine, kinetin, *N*-dimethyladenine, *N*-butyladenine, isoguanine, 2-amino-6-methoxypurine, 6-methylthiopurine, 2-chloroadenine, 6-methoxyadenine, 6-mercaptopurine, 7-methyladenine, 2-dimethylaminoadenine, 3-iminisoindolinone, acycloguanosine, 2'-deoxyguanosine, xanthosine, 2'-deoxyadenosine, 3'-deoxyadenosine, 5'-deoxyadenosine, 2',5'-dideoxyadenosine, 5'-amino-5'-deoxyadenosine, 5'-chloro-5'-deoxyadenosine, 5'-deoxy-5'-methylthioadenosine, *S*-adenosylhomocysteine, *S*-adenosylthiopropylamine *N*6-methyl-2'-deoxyadenosine, isoguanine, 2'-deoxyisoguanine, cytosine- $\beta$ -D-arabinofuranose, *N*-methylcytidine, 5-methyl-2'-deoxycytidine, 5-hydroxymethylcytidine, 2,4-diaminopyrimidine, 4,6-diaminopyrimidine, 4-amino-2,6-dihydroxypyrimidine, 2-amino-4,6-dihydroxypyrimidine, 5-methylcytosine, 5-hydroxymethylcytosine, 5-carboxycytosine, 5-aminocytosine, 5-fluorocytosine, 5-chlorocytosine, 4-hydroxy-2,5,6-triaminopyrimidine, *N*-methylcytosine, 3-methylcytosine, 2,6-diaminopyrimidine, 2,4,6-triaminopyrimidine, uracil, 5-aminouracil, 5-formyluracil, 5-fluorouracil, 3-oxauracil, 5-hydroxymethyluracil, 6-hydroxyaminouracil, thiamine, 2-aminopyrimidine, 4-aminopyrimidine, toxopyrimidine, sulfamonomethoxine, 4-thiouracil, 2-thiouracil, thymine, 5-azacytosine, ammeline, ammelide, cyanuric acid, 2-amino-4-

hydroxy-6-chlorotriazine, cyromazin, *N*-ethylammeline, desethylatrazine, 6-azacytosine, 2-aminopyridine, 2,6-diaminopyridine, 4,6-diamino-2-hydroxypyridine, 4-aminopyridine, 4-dimethylaminopyridine, creatinine, 5-amino-4-imidazolecarboxamide, 5-hydantoin acetic acid, 3-amino-5-mercapto-1,2,4-triazole, 3-amino-5-carboxy-1,2,4-triazole, dihydrouracil, dihydrothymine, and dihydroorotate.

**Crystallization and Data Collection.** All crystallization experiments were carried out by the sitting drop vapor diffusion method at 18 °C in 96 well Intelliplates (ART ROBBINS INSTRUMENTS). Equal volumes of crystallization reagent and protein (0.5 + 0.5  $\mu$ L) were mixed and equilibrated against 70  $\mu$ L of the crystallization agent in the reservoir. Crystals of Cv\_1032 (11.5 mg/mL in 20 mM HEPES, pH 7.8, 150 mM NaCl, 10% glycerol (w/v), 5 mM DTT and 5 mM inosine or 5 mM 5'-deoxy-5'-methylthioadenosine) were obtained with 10% (w/v) Peg20000, 100 mM BICINE, pH 9.0, 2% (v/v) dioxane. Crystals were soaked in mother liquor supplemented with 20% (v/v) glycerol and 5 mM inosine or 5 mM MTA for 30 s prior to flash-cooling in liquid nitrogen. Crystals of Xcc22270 (16.6 mg/mL in 20 mM HEPES pH 7.8, 150 mM NaCl, 10% (w/v) glycerol, 5 mM DTT, 5 mM MgCl<sub>2</sub>) were obtained with 1.0 M succinic acid pH 7.0, 100 mM HEPES pH 7.0, 1% PEG MME2000. Crystals were soaked in mother liquor supplemented with 20% (v/v) glycerol, 10 mM ZnCl<sub>2</sub> and 10 mM inosine (not seen in electron density) prior to flash-cooling in liquid nitrogen. Crystals of PA3170 (18.0 mg/mL in 20 mM HEPES pH 7.8, 150 mM NaCl, 10% (w/v) glycerol, 5 mM DTT) were obtained with 0.2M MgCl<sub>2</sub>, 100 mM Bis-Tris pH 6.5, 25% (w/v) Peg3350. Crystals were soaked in mother liquor supplemented with 20% (v/v) glycerol prior to flash-cooling in liquid nitrogen. All X-ray diffraction data were collected at 100 K using synchrotron radiation ( $\lambda = 0.98$ ) and intensities were integrated and scaled with

HKL3000 (1). Data for Cv1032 were collected on a Quantum 315 CCD detector (Area Detector Systems Corp) at NSLS beamline X29A (National Synchrotron Light Source, Brookhaven National Laboratory). Data for Xcc2270 and PA3170 were collected on a Rayonix 225-HE detector at APS beamline 31-ID (Advanced Photon Source, Argonne National Laboratory).

**Phasing and Refinement.** The Cv1032-inosine complex was phased by single anomalous dispersion (SAD) phasing using the program PHENIX (2) and selenomethionine labeled protein(3). The initial solvent flattened SAD map was of sufficient quality for the program ARP/WARP (4) to autobuild a majority of the structure. The Cv1032-MTA complex was isomorphous to the Cv1032 inosine complex. Xcc2270 was phased by molecular replacement utilizing the program PHASER (5) and a monomer of a related amidohydrolase family member (MCSG, PDB code: 3LNP, 43% identity) while Pa3170 was phased by molecular replacement with the program PHASER and a monomer of XCC2270 as the search model. Models were completed with iterative cycles of model building with the molecular graphics package COOT (6) and refinement in either PHENIX (4F0S, 4DZH, 4DYK) or REFMAC(7) (4F0R). Ligands to Cv1032 were introduced during the final rounds of refinement with geometric constraints produced by the PRODRG2 server (8).

<b>Subgroup</b>	<b>Organism</b>	<b>gi</b>	<b>Locus tag</b>	<b>Sequence identity to Tm0936</b>
1a	<i>Clostridium thermocellum</i> ATCC 27405	125973714	Cthe1199	42%
1b	<i>Methanosarcina mazei</i> Go1	21228381	Mm2279	40%
2	<i>Chromobacterium violaceum</i> ATCC 12472	34496487	Cv1032	32%
2	<i>Pseudomonas fluorescens</i> Pf0-1	77460301	Pfl4080	34%
2	<i>Xanthomonas campestris</i> pv. <i>campestris</i> str. ATCC 33913	21231708	Xcc2270	34%
2	<i>Pseudomonas aeruginosa</i> PAO1	15598366	Pa3170	33%
3	<i>Clostridium perfringens</i> ATCC 13124	110799822	Cpf1475	31%
3	<i>Enterococcus faecalis</i> V583	29375796	Ef1223	28%
4	<i>Bacillus cereus</i> ATCC 14579	29895480	Bc1793	36%
5	<i>Streptococcus pneumoniae</i> ATCC 700669	221232098	Spn13210	33%
6	<i>Desulfovibrio vulgaris</i> str. Hildenborough	46580235	Dvu1825	36%
7	<i>Chloroflexus aurantiacus</i> J-10-fl	163847463	Caur1903	32%
8	<i>Thermotoga maritima</i> MSB8	15643698	Tm0936	100%
9	<i>Moorella thermoacetica</i> ATCC 39073	83590072	Moth1224	32% (31%)*
10	<i>Agrobacterium vitis</i> S4	222106480	Avi5431	31%
11	<i>Thermoplasma volcanium</i> GSS1	13541346	Tvn0515	30%

\* Sequence identity in parenthesis is measured between the target sequence and the template Tm0936.

**Table S2.**

<b>DATASET STATISTICS<sup>a</sup></b>	Cv1032 (Zn-INOSINE)	Cv1032 (Zn-MTA)	Xcc2270 (ZN)	Pa3170 (ZN)
Space Group	P41212	P41212	C2	P212121
Unit Cell (Å , °)	$a=b=101.1$ $c=88.0$	$a=b=101.1$ $c=88.6$	$a=133.6$ $b=51.2$ $c=67.4$ $\beta=106.5$	$a=73.9$ $b=98.7$ $c=119.8$
Resolution (Å)	50-1.85 (1.88-1.85)	50-1.8 (1.83-1.8)	50-1.53 (1.65-1.55)	50-2.0 (2.03-2.0)
Completeness (%)	98.1 (98.6)	99.2 (100.0)	99.6 (100.0)	99.6 (98.9)
Redundancy	11.4 (11.4)	6.1 (5.8)	3.7 (3.7)	5.2 (4.7)
Mean(I)/sd(I)	21.9 (4.3)	23.2 (2.3)	18.9 (2.8)	11.2 (2.7)
$R_{\text{sym}}$	0.140 (0.870)	0.102 (0.799)	0.068 (0.527)	0.068 (0.753)
<b>STRUCTURE STATISTICS</b>				
Resolution (Å)	40.3-1.85 (1.90-1.85)	50-1.80 (1.85-1.80)	50-1.53 (1.57-1.55)	50-2.0 (2.05-2.0)
Unique reflections	39008 (2648)	41034 (2892)	65346 (2581)	55862 (3609)
$R_{\text{cryst}}$ (%)	15.7 (16.2)	16.3 (19.0)	20.8 (31.6)	17.6 (27.6)
$R_{\text{free}}$ (% , 5% of data)	18.5 (19.2)	19.9 (22.2)	23.3 (36.8)	22.4 (35.4)
Contents of model (Native Range) <sup>b</sup>	1-439	1-439	1-449	1-444
Observed residues	A5-438	A5-440	A9-447	A6-442, B6-442
Waters	299	325	247	309
Atoms total	3674	3646	3673	7035
Average B-factor (Å <sup>2</sup> )				
TLS groups (#)	0	0	2	8
Protein/Waters/Ligand/Zn	18.6/26.1/19.1/-	20.2/30.8/28.7/15.2	25.8/17.6/-/32.3	45.4/43.4/-/33.5
<b>RMSD</b>				
Bond lengths (Å) /Angles (°)	0.007/1.082	0.015/1.338	0.024/1.508	0.008/1.103
<b>MOLPROBITY STATISTICS</b>				
Ramachandran Favored / Outliers (%)	97.0 (0.23)	97.0 (0.23)	96.3 (0.23)	96.3 (0.3)
Rotamer Outliers (%)	0.0	0.29	1.2	2.0
Clashscore <sup>d</sup>	4.36 (98 <sup>th</sup> pctl)	5.87 (94 <sup>th</sup> pctl)	5.25 (92 <sup>nd</sup> pctl)	7.99 (90 <sup>th</sup> pctl)
Overall score <sup>d</sup>	1.39 (97 <sup>th</sup> pctl)	1.49 (94 <sup>th</sup> pctl)	1.57 (83 <sup>rd</sup> pctl)	1.91 (80 <sup>th</sup> pctl)
PDB ID	4F0S	4FOR	4DZH	4DYK

<sup>a</sup> Statistics in parenthesis are for the highest resolution bin

<sup>b</sup> numbering outside of listed native range are polyhistidine tags or cloning artifacts

<sup>c</sup> Scores are ranked according to structures of similar resolution as formulated in MOLPROBITY

<b>Table S3.</b> Substrates predicted for Moth1224		
<b>Compound</b>	<b>Homology models of Moth1224</b>	
	<b>Model 1 (based on 2PLM)</b>	<b>Model 2 (based on 2UZ9)</b>
Adenosine	25	
5'-Methylthioadenosine	31	
5'-Deoxyadenosine	40	
<b>Guanine</b>		10
8-oxoguanine		29
Thioguanine		35
The true substrate, guanine, is marked in bold.		

**Table S4.** Kinetic constants of adenosine deaminating enzymes

Locus Tag	Subgroup	5dAdo			Ado			MTA			SAH			TPA		
		$k_{cat}$ ( $s^{-1}$ )	$K_m$ ( $\mu M$ )	$k_{cat}/K_m$ ( $M^{-1}s^{-1}$ )	$k_{cat}$ ( $s^{-1}$ )	$K_m$ ( $\mu M$ )	$k_{cat}/K_m$ ( $M^{-1}s^{-1}$ )	$k_{cat}$ ( $s^{-1}$ )	$K_m$ ( $\mu M$ )	$k_{cat}/K_m$ ( $M^{-1}s^{-1}$ )	$k_{cat}$ ( $s^{-1}$ )	$K_m$ ( $\mu M$ )	$k_{cat}/K_m$ ( $M^{-1}s^{-1}$ )	$k_{cat}$ ( $s^{-1}$ )	$K_m$ ( $\mu M$ )	$k_{cat}/K_m$ ( $M^{-1}s^{-1}$ )
Cthe1199	1a	3.9 ± 0.1	78 ± 7	5.0 (0.3) × 10 <sup>4</sup>	2.6 ± 0.1	160 ± 20	1.6 (0.1) × 10 <sup>4</sup>	25 ± 2	9 ± 1	2.9 (0.6) × 10 <sup>6</sup>	25.6 ± 0.5	1.8 ± 0.2	1.4 (0.1) × 10 <sup>7</sup>	23 ± 1	4.4 ± 0.7	5.2 (0.5) × 10 <sup>6</sup>
Mm2279	1b	27 ± 2	2.3 ± 0.4	1.2 (0.1) × 10 <sup>7</sup>	7.9 ± .7	36 ± 8	2.2 (0.3) × 10 <sup>5</sup>	16 ± 1	0.9 ± 0.3	1.7 (0.4) × 10 <sup>7</sup>	34 ± 3	2.7 ± 0.6	13 (2) × 10 <sup>7</sup>	16 ± 1	2.1 ± 0.4	7.6 (1) × 10 <sup>6</sup>
Cv1032	2	105 ± 3	31 ± 3	3.4 (0.3) × 10 <sup>6</sup>	107 ± 4	16 ± 3	6.6 (1) × 10 <sup>5</sup>	18.2 ± 0.3	16 ± 1	1.2 (0.1) × 10 <sup>6</sup>	ND	ND	<100	ND	ND	<100
Pfl4080	2	119 ± 3	13 ± 1	8.9 (0.6) × 10 <sup>6</sup>	40 ± 1	90 ± 10	4.6 (0.2) × 10 <sup>5</sup>	57 ± 2	4 ± 1	1.3 (0.1) × 10 <sup>7</sup>	ND	ND	<100	ND	ND	<100
Xcc2270	2	67 ± 1	14 ± 1	4.7 (0.2) × 10 <sup>6</sup>	80 ± 2	24 ± 2	3.4 (0.1) × 10 <sup>6</sup>	74 ± 2	11 ± 1	6.8 (0.4) × 10 <sup>6</sup>	ND	ND	<100	ND	ND	<100
Pa3170	2	180 ± 3	4.0 ± 0.3	4.5 (0.2) × 10 <sup>7</sup>	131 ± 9	14 ± 3	9.6 (1.3) × 10 <sup>6</sup>	155 ± 3	1.9 ± 0.2	8.2 (0.8) × 10 <sup>7</sup>	ND	ND	<100	ND	ND	<100
Bc1793	4	41 ± 1	130 ± 20	3.6 (0.3) × 10 <sup>5</sup>	46 ± 2	120 ± 10	3.7 (1) × 10 <sup>5</sup>	ND	ND	<100	ND	ND	<100	ND	ND	<100
Spn13210	5	850 ± 60	60 ± 10	15 (2) × 10 <sup>6</sup>	660 ± 40	90 ± 10	7.2 (0.4) × 10 <sup>6</sup>	ND	ND	<100	ND	ND	<100	ND	ND	<100
Dvu1825	6	38.7 ± 0.5	3.3 ± 0.2	1.2 (0.1) × 10 <sup>7</sup>	43 ± 3	170 ± 20	2.6 (0.2) × 10 <sup>5</sup>	ND	ND	620 ± 40	ND	ND	<100	ND	ND	<100
Caur1903	7	2.58 ± 0.05	11 ± 1	2.3 (0.1) × 10 <sup>5</sup>	1.44 ± 0.04	5.6 ± 0.7	2.6 (0.3) × 10 <sup>5</sup>	ND	ND	<100	ND	ND	<100	ND	ND	<100
Tm0936	8	1.4 ± 0.1	39 ± 7	3.8 (0.5) × 10 <sup>4</sup>	2.2 ± 0.2	13 ± 4	1.7 (0.3) × 10 <sup>5</sup>	6.0 ± 0.3	4.0 ± 0.3	1.5 (0.1) × 10 <sup>6</sup>	7.1 ± 0.4	0.6 ± 0.2	1.1 (0.3) × 10 <sup>6</sup>	17 ± 1	9 ± 2	1.9 (0.2) × 10 <sup>6</sup>
Tvn0515	11	ND	ND	<100	ND	ND	<100	ND	ND	<100	2.77 ± 0.05	11 ± 1	2.6 (0.2) × 10 <sup>5</sup>	ND	ND	<100



**Table S5. Kinetic constants of non-adenosine deaminating enzymes**

Locus Tag	Subgroup	Substrate	$k_{\text{cat}}$ ( $\text{s}^{-1}$ )	$K_m$ ( $\mu\text{M}$ )	$k_{\text{cat}}/K_m$ ( $\text{M}^{-1}\text{s}^{-1}$ )
Moth1224	9	Guanine	$0.48 \pm 0.02$	$4.1 \pm 0.6$	$1.2 (0.1) \times 10^5$
Avi5431	10	8-oxoadenine	$3.4 \pm 0.2$	$19 \pm 3$	$1.8 (0.2) \times 10^5$
		2-oxoadenine	$13 \pm 3$	$600 \pm 200$	$2.3 (0.2) \times 10^4$

**Table S6.** Provisional annotation of enzymes in Group 1

Acetonema longum DSM 6540	338814514	Sg1a	SAH/MTA Deaminase
Acidaminococcus fermentans DSM 20731	284048666	Sg1a	SAH/MTA Deaminase
Acidaminococcus intestini RyC-MR95	352684529	Sg1a	SAH/MTA Deaminase
Acidaminococcus sp. D21	227498515	Sg1a	SAH/MTA Deaminase
Acidithiobacillus caldus ATCC 51756	255021229	Sg2	MTA/5'-dAdo/Ado Deaminase
Acidithiobacillus ferrivorans SS3	344200120	Sg2	MTA/5'-dAdo/Ado Deaminase
Acidithiobacillus ferrooxidans ATCC 53993	198283616	Sg2	MTA/5'-dAdo/Ado Deaminase
Acidithiobacillus thiooxidans ATCC 19377	384084622	Sg2	MTA/5'-dAdo/Ado Deaminase
Aciduliprofundum boonei T469	254166651	Sg11	SAH Deaminase
Aciduliprofundum boonei T469	254167272	Sg11	SAH Deaminase
Acinetobacter lwoffii SH145	262376404	Sg10	8-Oxoadenine Deaminase
Acinetobacter sp. HA	389704937	Sg10	8-Oxoadenine Deaminase
Agrobacterium vitis S4	222106480	Sg10	8-Oxoadenine Deaminase
Akkermansia muciniphila ATCC BAA-835	187736175	Sg6	5'-dAdo Deaminase
Albugo laibachii Nc14	325189944	Sg2	MTA/5'-dAdo/Ado Deaminase
Albugo laibachii Nc14	325189945	Sg2	MTA/5'-dAdo/Ado Deaminase
Alcanivorax borkumensis SK2	110834613	Sg2	MTA/5'-dAdo/Ado Deaminase
Alcanivorax dieselolei B5	407696804	Sg2	MTA/5'-dAdo/Ado Deaminase
Alcanivorax hongdengensis A-11-3	408375135	Sg2	MTA/5'-dAdo/Ado Deaminase
Alcanivorax pacificus W11-5	407802061	Sg2	MTA/5'-dAdo/Ado Deaminase
Alcanivorax sp. DG881	254429653	Sg2	MTA/5'-dAdo/Ado Deaminase
Alkalilimnicola ehrlichii MLHE-1	114320072	Sg2	MTA/5'-dAdo/Ado Deaminase
Alkaliphilus metalliredigens QYMF	150392253	Sg9	Guanine Deaminase
Alkaliphilus oremlandii OhILAs	158319425	Sg9	Guanine Deaminase
Allochromatium vinosum DSM 180	288941706	Sg2	MTA/5'-dAdo/Ado Deaminase
Alteromonas sp. S89	372267296	Sg2	MTA/5'-dAdo/Ado Deaminase
Ammonifex degensii KC4	260892855	Sg1a	SAH/MTA Deaminase
Anaerococcus hydrogenalis ACS-025-V-Sch4	325846621	Sg1a	SAH/MTA Deaminase
Anaerococcus hydrogenalis DSM 7454	212696141	Sg1a	SAH/MTA Deaminase
Anaerococcus prevotii ACS-065-V-Col13	325479377	Sg1a	SAH/MTA Deaminase
Anaerococcus prevotii DSM 20548	257066470	Sg1a	SAH/MTA Deaminase
Anaerolinea thermophila UNI-1	320161507	Sg7	5'-dAdo/Ado Deaminase
Archaeoglobus fulgidus DSM 4304	11498602	Sg1b	SAH/MTA/5'-dAdo Deaminase
Archaeoglobus profundus DSM 5631	284161269	Sg1b	SAH/MTA/5'-dAdo Deaminase
Archaeoglobus veneficus SNP6	327401019	Sg1b	SAH/MTA/5'-dAdo Deaminase
Aromatoleum aromaticum EbN1	56475928	Sg2	MTA/5'-dAdo/Ado Deaminase
Azoarcus sp. BH72	119898878	Sg2	MTA/5'-dAdo/Ado Deaminase
Azoarcus sp. KH32C	358638550	Sg2	MTA/5'-dAdo/Ado Deaminase
Azotobacter vinelandii DJ	226943694	Sg2	MTA/5'-dAdo/Ado Deaminase
Bacillus alcalophilus ATCC 27647	402299138	Sg1a	SAH/MTA Deaminase
Bacillus alcalophilus ATCC 27647	402299011	Sg9	Guanine Deaminase
Bacillus anthracis str. A2012	65319185	Sg4	5'-dAdo/Ado Deaminase
Bacillus anthracis str. Ames	30261905	Sg4	5'-dAdo/Ado Deaminase
Bacillus cellulosilyticus DSM 2522	317128620	Sg1a	SAH/MTA Deaminase
Bacillus cereus 03BB102	225863770	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus 03BB108	196045020	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus 172560W	229178305	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus 95/8201	229121453	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH1134	206970647	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH1271	229029603	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH1273	229017192	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH187	217959387	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH603	229059557	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH621	229166770	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AH676	229043659	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus AND1407	401100969	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ATCC 10876	229189999	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ATCC 10987	2462117	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ATCC 10987	42736941	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ATCC 14579	30019935	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ATCC 4342	229155478	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus B4264	218233043	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG1X1-2	401644151	Sg4	5'-dAdo/Ado Deaminase

Bacillus cereus BAG1X1-3	401637644	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG2X1-1	401649456	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG2X1-2	401647728	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG3X2-1	401102048	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG5X1-1	401135601	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG5X2-1	401140262	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG6X1-1	402435656	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BAG6X1-2	401144982	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BDRD-Cer4	229127222	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BDRD-ST196	229132732	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus BDRD-ST26	229138605	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus biovar anthracis str. CI	301053436	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus E33L	51977022	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus F65185	229069450	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus F837/76	376265752	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus FRI-35	402557855	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus G9241	47565590	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus G9842	218896835	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus H3081.97	206975034	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus HuA2-1	402455989	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus HuA2-4	401165478	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus HuA4-10	401170102	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus HuB1-1	402446765	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus ISP3191	401186307	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus m1293	229196109	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus m1550	229150105	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus MC67	401196778	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus MM3	229172558	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus NVH0597-99	196041244	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Q1	222095526	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus R309803	229160865	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock1-15	229109356	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock1-3	229115336	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock3-28	229102492	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock3-42	229090873	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock3-44	229084858	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock4-18	229074831	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus Rock4-2	229079081	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD014	401217546	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD045	401227400	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD048	401224952	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD078	401231302	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD102	401241928	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD107	401249584	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD115	401253694	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD156	401273332	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD166	401275063	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD169	401285773	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VD200	401294813	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VDM022	401296447	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VDM034	401303214	Sg4	5'-dAdo/Ado Deaminase
Bacillus cereus VDM062	401307506	Sg4	5'-dAdo/Ado Deaminase
Bacillus clausii KSM-K16	56963827	Sg1a	SAH/MTA Deaminase
Bacillus cytotoxicus NVH 391-98	152975255	Sg4	5'-dAdo/Ado Deaminase
Bacillus halodurans C-125	15614255	Sg1a	SAH/MTA Deaminase
Bacillus halodurans C-125	162416220	Sg1a	SAH/MTA Deaminase
Bacillus halodurans C-125	15613309	Sg9	Guanine Deaminase
Bacillus macauensis ZFHKF-1	392958953	Sg1a	SAH/MTA Deaminase
Bacillus megaterium DSM 319	295703084	Sg9	Guanine Deaminase
Bacillus megaterium QM B1551	294497714	Sg9	Guanine Deaminase
Bacillus megaterium WSH-002	384048466	Sg9	Guanine Deaminase
Bacillus methanolicus PB1	387928511	Sg9	Guanine Deaminase
Bacillus mycoides DSM 2048	229011199	Sg4	5'-dAdo/Ado Deaminase
Bacillus mycoides Rock1-4	229007884	Sg4	5'-dAdo/Ado Deaminase
Bacillus mycoides Rock3-17	228996976	Sg4	5'-dAdo/Ado Deaminase
Bacillus pseudofirmus OF4	288556132	Sg1a	SAH/MTA Deaminase

Bacillus pseudomycooides DSM 12442	228990902	Sg4	5'-dAdo/Ado Deaminase
Bacillus selenitireducens MLS10	297584388	Sg1a	SAH/MTA Deaminase
Bacillus selenitireducens MLS10	297582902	Sg9	Guanine Deaminase
Bacillus smithii 7_3_47FAA	365158272	Sg9	Guanine Deaminase
Bacillus sp. 1NLA3E	373858121	Sg9	Guanine Deaminase
Bacillus sp. 2_A_57_CT2	319653145	Sg9	Guanine Deaminase
Bacillus thuringiensis BMB171	296502493	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis HD-771	402561058	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis HD-789	401873394	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis IBL 200	228907597	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis IBL 4222	228900482	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis MC28	407704282	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar andalousiensis BGSC 4AW1	228936987	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar berliner ATCC 10792	228939014	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar chinensis CT-43	384185807	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar finitimus YBT-020	384179851	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar huazhongensis BGSC 4BD1	228920608	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar konkukian str. 97-27	49477409	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar kurstaki str. T03a001	228952282	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar pakistani str. T13001	228958183	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar pondicheriensis BGSC 4BA1	228926904	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar pulsiensis BGSC 4CC1	228914493	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar sotto str. T04001	228964893	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis serovar tochiensis BGSC 4Y1	228984996	Sg4	5'-dAdo/Ado Deaminase
Bacillus thuringiensis str. AI Hakam	118477326	Sg4	5'-dAdo/Ado Deaminase
Bacillus weihenstephanensis KBAB4	163939704	Sg4	5'-dAdo/Ado Deaminase
Beggiatoa alba B18LD	386827021	Sg2	MTA/5'-dAdo/Ado Deaminase
Beggiatoa sp. PS	153873847	Sg2	MTA/5'-dAdo/Ado Deaminase
Bermanella marisrubri	94499387	Sg2	MTA/5'-dAdo/Ado Deaminase
beta proteobacterium KB13	254467827	Sg2	MTA/5'-dAdo/Ado Deaminase
Bilophila sp. 4_1_30	345889947	Sg9	Guanine Deaminase
Bilophila wadsworthia 3_1_6	317487162	Sg9	Guanine Deaminase
Blastocystis hominis	300121918	Sg2	MTA/5'-dAdo/Ado Deaminase
Brevibacillus brevis NBRC 100599	226310925	Sg1a	SAH/MTA Deaminase
Brevibacillus brevis NBRC 100599	226312096	Sg1a	SAH/MTA Deaminase
Brevibacillus laterosporus GI-9	372457910	Sg1a	SAH/MTA Deaminase
Brevibacillus laterosporus LMG 15441	339010906	Sg1a	SAH/MTA Deaminase
Brevibacillus sp. BC25	398816055	Sg1a	SAH/MTA Deaminase
Brevibacillus sp. BC25	398816901	Sg1a	SAH/MTA Deaminase
Brevibacillus sp. CF112	399051035	Sg1a	SAH/MTA Deaminase
Brevibacillus sp. CF112	399053627	Sg1a	SAH/MTA Deaminase
Caldalkalibacillus thermarum TA2.A1	335040522	Sg4	5'-dAdo/Ado Deaminase
Caldicellulosiruptor bescii DSM 6725	222528885	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor hydrothermalis 108	312128012	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor kristjanssonii 177R1B	312792882	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor kronotskyensis 2002	312622825	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor lactoaceticus 6A	344996935	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor obsidiansi OB47	302871479	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor owensensis OL	312134758	Sg1a	SAH/MTA Deaminase
Caldicellulosiruptor saccharolyticus DSM 8903	146296488	Sg1a	SAH/MTA Deaminase
Caldithrix abyssi DSM 13497	373458019	Sg7	5'-dAdo/Ado Deaminase
Caldithrix abyssi DSM 13497	373459944	Sg9	Guanine Deaminase
Caloramator australicus RC3	397905043	Sg9	Guanine Deaminase
Candidatus Accumulibacter phosphatis clade IIA str. UW-1	257092705	Sg2	MTA/5'-dAdo/Ado Deaminase
Candidatus Chloracidobacterium thermophilum	157273296	Sg9	Guanine Deaminase
Candidatus Chloracidobacterium thermophilum B	347755953	Sg9	Guanine Deaminase
Candidatus Desulforudis audaxviator MP104C	169830835	Sg1a	SAH/MTA Deaminase
Candidatus Micrarchaeum acidiphilum ARMAN-2	255513470	Sg11	SAH Deaminase
Carboxydotherrmus hydrogenoformans Z-2901	78042858	Sg1a	SAH/MTA Deaminase
Carboxydotherrmus hydrogenoformans Z-2901	78043497	Sg9	Guanine Deaminase
Celeribacter baekdonensis B30	407788291	Sg10	8-Oxoadenine Deaminase
Cellvibrio japonicus Ueda107	192359201	Sg2	MTA/5'-dAdo/Ado Deaminase
Cellvibrio sp. BR	388257211	Sg2	MTA/5'-dAdo/Ado Deaminase
Chloroflexus aggregans DSM 9485	219848329	Sg7	5'-dAdo/Ado Deaminase
Chloroflexus aurantiacus J-10-fl	163847463	Sg7	5'-dAdo/Ado Deaminase
Chondromyces apiculatus DSM 436	405354369	Sg9	Guanine Deaminase

<i>Chromobacterium violaceum</i> ATCC 12472	34496487	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Clostridium cellulolyticum</i> H10	220929580	Sg1a	SAH/MTA Deaminase
<i>Clostridium clariflavum</i> DSM 19732	374297278	Sg1a	SAH/MTA Deaminase
<i>Clostridium papyrosolvens</i> DSM 2782	326204458	Sg1a	SAH/MTA Deaminase
<i>Clostridium</i> sp. BNL1100	376261823	Sg1a	SAH/MTA Deaminase
<i>Clostridium thermocellum</i> ATCC 27405	125973714	Sg1a	SAH/MTA Deaminase
<i>Congregibacter litoralis</i> KT71	88705959	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Coralococcus coralloides</i> DSM 2259	383458147	Sg9	Guanine Deaminase
<i>Coxiella burnetii</i> CbuG_Q212	212212982	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Coxiella burnetii</i> Dugway 5J108-111	209364106	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Coxiella burnetii</i> 'MSU Goat Q177'	153207936	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Cycloclasticus</i> sp. P1	407716515	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Dechloromonas aromatica</i> RCB	71906868	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Dechlorosoma suillum</i> PS	372488586	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Dehalobacter</i> sp. DCA	410658783	Sg1a	SAH/MTA Deaminase
<i>Desulfotobacterium dehalogenans</i> ATCC 51507	392394730	Sg1a	SAH/MTA Deaminase
<i>Desulfotobacterium hafniense</i> DCB-2	219669780	Sg1a	SAH/MTA Deaminase
<i>Desulfotobacterium hafniense</i> DP7	361854316	Sg1a	SAH/MTA Deaminase
<i>Desulfotobacterium hafniense</i> Y51	89895347	Sg1a	SAH/MTA Deaminase
<i>Desulfotobacterium metallireducens</i> DSM 15288	354558628	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus acidiphilus</i> SJ4	392426864	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus acidiphilus</i> SJ4	392425377	Sg9	Guanine Deaminase
<i>Desulfosporosinus meridiei</i> DSM 13257	402574100	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus meridiei</i> DSM 13257	402571851	Sg9	Guanine Deaminase
<i>Desulfosporosinus orientis</i> DSM 765	374997113	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus orientis</i> DSM 765	374994062	Sg9	Guanine Deaminase
<i>Desulfosporosinus</i> sp. OT	345859710	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus</i> sp. OT	345856704	Sg9	Guanine Deaminase
<i>Desulfosporosinus youngiae</i> DSM 17734	374582905	Sg1a	SAH/MTA Deaminase
<i>Desulfosporosinus youngiae</i> DSM 17734	374579958	Sg9	Guanine Deaminase
<i>Desulfotomaculum acetoxidans</i> DSM 771	258514475	Sg1a	SAH/MTA Deaminase
<i>Desulfotomaculum gibsoniae</i> DSM 7213	357038764	Sg1a	SAH/MTA Deaminase
<i>Desulfotomaculum gibsoniae</i> DSM 7213	357038847	Sg9	Guanine Deaminase
<i>Desulfotomaculum kuznetsovii</i> DSM 6115	333979669	Sg1a	SAH/MTA Deaminase
<i>Desulfotomaculum nigrificans</i> DSM 574	323702678	Sg1a	SAH/MTA Deaminase
<i>Desulfotomaculum reducens</i> MI-1	134299907	Sg1a	SAH/MTA Deaminase
<i>Desulfotomaculum ruminis</i> DSM 2154	334340360	Sg1a	SAH/MTA Deaminase
<i>Desulfovibrio aespoeensis</i> Aspo-2	317153206	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio africanus</i> str. Walvis Bay	374301048	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio alaskensis</i> G20	78356855	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio desulfuricans</i> ND132	376295307	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774	220905193	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio fructosovorans</i> JJ	303247207	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio magneticus</i> RS-1	239907238	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio magneticus</i> str. Maddingley MBC34	410462003	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio piger</i> ATCC 29098	212702496	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio salexigens</i> DSM 2638	242279072	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio</i> sp. 3_1_syn3	303327872	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio</i> sp. 6_1_46FAA	345893536	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio</i> sp. A2	347731243	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio</i> sp. FW1012B	357632585	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio</i> sp. U5L	386392840	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio vulgaris</i> DP4	120602380	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio vulgaris</i> str. Hildenborough	46580235	Sg6	5'-dAdo Deaminase
<i>Desulfovibrio vulgaris</i> str. 'Miyazaki F'	218885652	Sg6	5'-dAdo Deaminase
<i>Dethiobacter alkaliphilus</i> AHT 1	225181018	Sg1a	SAH/MTA Deaminase
<i>Dialister microaerophilus</i> UPII 345-E	313891988	Sg1a	SAH/MTA Deaminase
<i>Dictyostelium discoideum</i> AX4	66808699	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Dictyostelium fasciculatum</i>	328876856	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Dictyostelium purpureum</i>	330840449	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Ectothiorhodospira</i> sp. PHS-1	374622997	Sg2	MTA/5'-dAdo/Ado Deaminase
endosymbiont of <i>Tevnia jerichonana</i> (vent Tica)	345863456	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Ferroglobus placidus</i> DSM 10642	288931156	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Ferroplasma acidarmanus</i> fer1	257076627	Sg11	SAH Deaminase
<i>Fervidobacterium nodosum</i> Rt17-B1	154249043	Sg8	SAH/MTA Deaminase
<i>Fervidobacterium pennivorans</i> DSM 9078	383786427	Sg8	SAH/MTA Deaminase

Filifactor alocis ATCC 35896	374307435	Sg1a	SAH/MTA Deaminase
Frankia sp. CN3	358458993	Sg10	8-Oxoadenine Deaminase
Frankia sp. Eu1c	312198398	Sg10	8-Oxoadenine Deaminase
Frateuria aurantia DSM 6220	383316999	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium BDW918	386286357	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium HIMB55	374619383	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium HTCC2207	90416544	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium HTCC5015	254447042	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium IMCC1989	331005952	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium IMCC3088	329894506	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium NOR51-B	254281621	Sg2	MTA/5'-dAdo/Ado Deaminase
gamma proteobacterium NOR5-3	254515160	Sg2	MTA/5'-dAdo/Ado Deaminase
Glaciecola psychrophila 170	410612095	Sg10	8-Oxoadenine Deaminase
Hahella chejuensis KCTC 2396	83647052	Sg2	MTA/5'-dAdo/Ado Deaminase
Haladaptatus paucihalophilus DX253	322368161	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halalkalicoccus jeotgali B3	300709789	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halalkalicoccus jeotgali B3	300711133	Sg9	Guanine Deaminase
Haloarcula hispanica ATCC 33960	344210262	Sg9	Guanine Deaminase
Haloarcula marismortui ATCC 43049	55376787	Sg9	Guanine Deaminase
Halobacterium sp. DL1	354609692	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halobacterium sp. DL1	354611609	Sg9	Guanine Deaminase
Halobacterium sp. NRC-1	15791066	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halobacterium sp. NRC-1	15790271	Sg9	Guanine Deaminase
Halobiforma lacticisalsi AJ5	383619876	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halobiforma lacticisalsi AJ5	383622348	Sg9	Guanine Deaminase
Halococcus hamelinensis 100A6	409723629	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloferax mediterranei ATCC 33500	389845656	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloferax mediterranei ATCC 33500	389848339	Sg9	Guanine Deaminase
Haloferax volcanii DS2	292654344	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloferax volcanii DS2	292657041	Sg9	Guanine Deaminase
Halogeometricum borinquense DSM 11551	313124800	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halogeometricum borinquense DSM 11551	313125853	Sg9	Guanine Deaminase
Halogramum salarium B-1	399576134	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halogramum salarium B-1	399578642	Sg9	Guanine Deaminase
Halomicrobium mukohataei DSM 12286	257386819	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halomicrobium mukohataei DSM 12286	257388127	Sg9	Guanine Deaminase
halophilic archaeon DL31	345005326	Sg1b	SAH/MTA/5'-dAdo Deaminase
halophilic archaeon DL31	345006111	Sg1b	SAH/MTA/5'-dAdo Deaminase
halophilic archaeon DL31	345005185	Sg9	Guanine Deaminase
Halopiger xanaduensis SH-6	336252669	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halopiger xanaduensis SH-6	336251757	Sg9	Guanine Deaminase
Haloquadratum walsbyi C23	385804851	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloquadratum walsbyi C23	385803442	Sg9	Guanine Deaminase
Haloquadratum walsbyi DSM 16790	110669287	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloquadratum walsbyi DSM 16790	110667994	Sg9	Guanine Deaminase
Halorhabdus tiamatea SARL4B	335438625	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halorhabdus utahensis DSM 12940	257052590	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halorhodospira halophila SL1	121997375	Sg2	MTA/5'-dAdo/Ado Deaminase
Halorubrum lacusprofundi ATCC 49239	222478500	Sg1b	SAH/MTA/5'-dAdo Deaminase
Halorubrum lacusprofundi ATCC 49239	222480611	Sg9	Guanine Deaminase
Haloterrigena turkmenica DSM 5511	284163440	Sg1b	SAH/MTA/5'-dAdo Deaminase
Haloterrigena turkmenica DSM 5511	284167168	Sg9	Guanine Deaminase
Heliobacterium modesticaldum Ice1	167630246	Sg1a	SAH/MTA Deaminase
Heliobacterium modesticaldum Ice1	167630730	Sg9	Guanine Deaminase
Herpetosiphon aurantiacus DSM 785	159901377	Sg7	5'-dAdo/Ado Deaminase
Hydrocarboniphaga effusa AP103	392954008	Sg2	MTA/5'-dAdo/Ado Deaminase
Ignavibacterium album JCM 16511	385810930	Sg9	Guanine Deaminase
Janthinobacterium sp. Marseille	152980942	Sg10	8-Oxoadenine Deaminase
Kangiella koreensis DSM 16069	256822116	Sg2	MTA/5'-dAdo/Ado Deaminase
Kyrpidia tusciae DSM 2912	295696295	Sg1a	SAH/MTA Deaminase
Kyrpidia tusciae DSM 2912	295696613	Sg9	Guanine Deaminase
Laribacter hongkongensis HLHK9	226939880	Sg2	MTA/5'-dAdo/Ado Deaminase
Lawsonia intracellularis PHE/MN1-00	94986921	Sg6	5'-dAdo Deaminase
Lawsonia intracellularis PHE/MN1-00	162416190	Sg6	5'-dAdo Deaminase
Limnobacter sp. MED105	149928285	Sg2	MTA/5'-dAdo/Ado Deaminase
Mahella australiensis 50-1 BON	332980925	Sg1a	SAH/MTA Deaminase

Marichromatium purpuratum 984	344342370	Sg2	MTA/5'-dAdo/Ado Deaminase
marine gamma proteobacterium HTCC2080	119505050	Sg2	MTA/5'-dAdo/Ado Deaminase
marine gamma proteobacterium HTCC2143	119476908	Sg2	MTA/5'-dAdo/Ado Deaminase
marine gamma proteobacterium HTCC2148	254481817	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter adhaerens HP15	385330969	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter algicola DG893	149374309	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter aquaeolei VT8	120555405	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter hydrocarbonoclasticus ATCC 49840	387814819	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter manganooxydans Mnl7-9	358448853	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter sp. BSs20148	399544435	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinobacter sp. ELB17	126665969	Sg2	MTA/5'-dAdo/Ado Deaminase
Marinomonas sp. MED121	87119283	Sg2	MTA/5'-dAdo/Ado Deaminase
Megamonas hypermegale ART12/1	291533823	Sg1a	SAH/MTA Deaminase
Megasphaera elsdenii DSM 20460	348026976	Sg1a	SAH/MTA Deaminase
Megasphaera genomsp. type_1 str. 28L	290968533	Sg1a	SAH/MTA Deaminase
Megasphaera sp. UPII 135-E	342218412	Sg1a	SAH/MTA Deaminase
Methanobacterium formicicum DSM 3637	408381208	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobacterium sp. AL-21	325957773	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobacterium sp. Maddingley MBC34	410720785	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobacterium sp. SWAN-1	333986326	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobrevibacter ruminantium M1	288559345	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobrevibacter smithii ATCC 35061	148643319	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanobrevibacter smithii DSM 2375	222445560	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocaldococcus fervens AG86	256811411	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocaldococcus infernus ME	296109783	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocaldococcus jannaschii DSM 2661	15669736	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocaldococcus sp. FS406-22	289192226	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocaldococcus vulcanius M7	261402768	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcoides burtonii DSM 6242	91773163	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus aeolicus Nankai-3	150400987	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus maripaludis C5	134045132	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus maripaludis C6	159905566	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus maripaludis C7	150402659	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus maripaludis S2	45359054	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus maripaludis X1	340624802	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanococcus vannielii SB	150399551	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanocorpusculum labreanum Z	124485874	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoculleus bourgensis MS2	397780245	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoculleus marisnigri JR1	126179037	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanofollis liminatans DSM 4140	395646173	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanohalobium evestigatum Z-7303	298674732	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanohalobium evestigatum Z-7303	298674749	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanohalophilus mahii DSM 5219	294495200	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanolinea tarda NOBI-1	355571893	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanolobus psychrophilus R15	410670209	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoplanus limicola DSM 2279	374628529	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoplanus petrolearius DSM 11571	307352986	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoregula boonei 6A8	154150311	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosalsum zhilinae DSM 4017	336476448	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosarcina acetivorans C2A	20090140	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosarcina acetivorans C2A	162416231	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosarcina barkeri str. Fusaro	73670698	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosarcina mazei Go1	21228381	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosarcina mazei Go1	162416232	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosphaera stadtmanae DSM 3091	84489028	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanosphaerula palustris E1-9c	219851668	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanospirillum hungatei JF-1	88603687	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanothermobacter marburgensis str. Marburg	304313866	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanothermobacter thermautotrophicus str. Delta H	15679502	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanothermococcus okinawensis IH1	336121909	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanothermus fervidus DSM 2088	312136929	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoterris formicicus Mc-S-70	374635036	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methanoterris igneus Kol 5	333910056	Sg1b	SAH/MTA/5'-dAdo Deaminase
Methylobacillus flagellatus KT	91775930	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylobacter tundripaludum SV96	344943153	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylococcus capsulatus str. Bath	53804375	Sg2	MTA/5'-dAdo/Ado Deaminase

Methylomicrobium album BG8	381151397	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylomicrobium alcaliphilum 20Z	357404855	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylomonas methanica MC09	333983431	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylophaga aminisulfivorans MP	335043680	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylophaga sp. JAM1	387126837	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylophaga sp. JAM7	387129950	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylophaga thiooxidans DMS010	254492160	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylophilales bacterium HTCC2181	118594964	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylotenera mobilis JLW8	253996273	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylotenera versatilis 301	297538147	Sg2	MTA/5'-dAdo/Ado Deaminase
Methyloversatilis universalis FAM5	334131892	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylovorus glucosetrophus SIP3-4	253999389	Sg2	MTA/5'-dAdo/Ado Deaminase
Methylovorus sp. MP688	313201411	Sg2	MTA/5'-dAdo/Ado Deaminase
Moorella thermoacetica ATCC 39073	83590072	Sg9	Guanine Deaminase
Myxococcus fulvus HW-1	338536821	Sg9	Guanine Deaminase
Myxococcus xanthus DK 1622	108760686	Sg9	Guanine Deaminase
Natranaerobius thermophilus JW/NM-WN-LF	188586216	Sg1a	SAH/MTA Deaminase
Natranaerobius thermophilus JW/NM-WN-LF	188585774	Sg9	Guanine Deaminase
Natrialba magadii ATCC 43099	289581520	Sg1b	SAH/MTA/5'-dAdo Deaminase
Natrialba magadii ATCC 43099	289582777	Sg9	Guanine Deaminase
Natrinema sp. J7-2	397772383	Sg1b	SAH/MTA/5'-dAdo Deaminase
Natrinema sp. J7-2	397775256	Sg9	Guanine Deaminase
Natronomonas pharaonis DSM 2160	76801137	Sg1b	SAH/MTA/5'-dAdo Deaminase
Nitrococcus mobilis Nb-231	88810641	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosococcus halophilus Nc4	292492450	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosococcus oceani ATCC 19707	77165758	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosococcus watsonii C-113	300114707	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosomonas sp. AL212	325982084	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosomonas sp. Is79A3	339484010	Sg2	MTA/5'-dAdo/Ado Deaminase
Nitrosospira multiformis ATCC 25196	82703305	Sg2	MTA/5'-dAdo/Ado Deaminase
Oscillochloris trichoides DG-6	309790136	Sg7	5'-dAdo/Ado Deaminase
Paenibacillus alvei DSM 29	402815300	Sg1a	SAH/MTA Deaminase
Paenibacillus curdolanolyticus YK9	304406901	Sg1a	SAH/MTA Deaminase
Paenibacillus curdolanolyticus YK9	304407468	Sg9	Guanine Deaminase
Paenibacillus dendritiformis C454	374606202	Sg1a	SAH/MTA Deaminase
Paenibacillus dendritiformis C454	374606828	Sg1a	SAH/MTA Deaminase
Paenibacillus elgii B69	357014314	Sg1a	SAH/MTA Deaminase
Paenibacillus lactis 154	354582691	Sg1a	SAH/MTA Deaminase
Paenibacillus mucilaginosus 3016	379720955	Sg1a	SAH/MTA Deaminase
Paenibacillus mucilaginosus K02	386721945	Sg9	Guanine Deaminase
Paenibacillus mucilaginosus KNP414	337747099	Sg1a	SAH/MTA Deaminase
Paenibacillus mucilaginosus KNP414	337745352	Sg9	Guanine Deaminase
Paenibacillus peoriae KCTC 3763	390453515	Sg1a	SAH/MTA Deaminase
Paenibacillus polymyxa E681	308069468	Sg1a	SAH/MTA Deaminase
Paenibacillus polymyxa SC2	310642521	Sg1a	SAH/MTA Deaminase
Paenibacillus popilliae ATCC 14706	410831044	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. Aloe-11	375308996	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. HGF5	329929741	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. HGF7	334137813	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. HGF7	334133556	Sg4	5'-dAdo/Ado Deaminase
Paenibacillus sp. JDR-2	251796461	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. JDR-2	251797317	Sg9	Guanine Deaminase
Paenibacillus sp. oral taxon 786 str. D14	253577521	Sg1a	SAH/MTA Deaminase
Paenibacillus sp. Y412MC10	261406089	Sg1a	SAH/MTA Deaminase
Paenibacillus terrae HPL-003	374324456	Sg1a	SAH/MTA Deaminase
Paenibacillus terrae HPL-003	374324681	Sg1a	SAH/MTA Deaminase
Paenibacillus vortex V453	315646469	Sg1a	SAH/MTA Deaminase
Pelosinus fermentans DSM 17108	392960171	Sg1a	SAH/MTA Deaminase
Pelosinus fermentans DSM 17108	392960651	Sg1a	SAH/MTA Deaminase
Pelosinus fermentans JBW45	392525916	Sg1a	SAH/MTA Deaminase
Pelotomaculum thermopropionicum SI	147678063	Sg1a	SAH/MTA Deaminase
Peptoniphilus harei ACS-146-V-Sch2b	313888086	Sg1a	SAH/MTA Deaminase
Peptoniphilus lacrimalis 315-B	282883342	Sg1a	SAH/MTA Deaminase
Peptoniphilus rhinitidis 1-13	399924014	Sg1a	SAH/MTA Deaminase
Peptoniphilus sp. oral taxon 375 str. F0436	342215639	Sg1a	SAH/MTA Deaminase
Peptoniphilus sp. oral taxon 386 str. F0131	299144487	Sg1a	SAH/MTA Deaminase



Peptoniphilus sp. oral taxon 836 str. F0141	300814796	Sg1a	SAH/MTA Deaminase
Phytophthora infestans T30-4	301110462	Sg2	MTA/5'-dAdo/Ado Deaminase
Phytophthora infestans T30-4	301117868	Sg2	MTA/5'-dAdo/Ado Deaminase
Phytophthora sojae	348667430	Sg2	MTA/5'-dAdo/Ado Deaminase
Phytophthora sojae	348688636	Sg2	MTA/5'-dAdo/Ado Deaminase
Picrophilus torridus DSM 9790	48477797	Sg11	SAH Deaminase
Polysphondylium pallidum PN500	281202610	Sg2	MTA/5'-dAdo/Ado Deaminase
Porphyromonas asaccharolytica DSM 20707	332299943	Sg1b	SAH/MTA/5'-dAdo Deaminase
Porphyromonas asaccharolytica PR426713P-I	313887254	Sg1b	SAH/MTA/5'-dAdo Deaminase
Porphyromonas endodontalis ATCC 35406	229495478	Sg1b	SAH/MTA/5'-dAdo Deaminase
Porphyromonas sp. oral taxon 279 str. F0450	402846236	Sg1b	SAH/MTA/5'-dAdo Deaminase
Porphyromonas uenonis 60-3	228470332	Sg1b	SAH/MTA/5'-dAdo Deaminase
Pseudogulbenkiania ferrooxidans 2002	224824519	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudogulbenkiania sp. NH8B	347538759	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa 138244	334835211	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa ATCC 700888	404537409	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa M18	386057869	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa PA7	152983730	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa PACS2	107102700	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa PAO1	15598366	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas aeruginosa UCBPP-PA14	116051159	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas avellanae BPIC 631	407990790	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas brassicacearum subsp. brassicacearum NFM421	330808285	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas chlororaphis O6	389680971	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas chlororaphis subsp. aureofaciens 30-84	397883504	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas entomophila L48	104780666	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas extremaustralis 14-3 substr. 14-3b	395651183	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens A506	387892902	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens F113	378949565	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens Pf0-1	77460301	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens Q2-87	397889241	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens R124	404305413	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens SBW25	229589162	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens SS101	387997677	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fluorescens WH6	312959696	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fragi A22	402699915	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fulva 12-X	333900206	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas fuscovaginae UPB0736	404401721	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas geniculata N1	408825073	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas mandelii JR-1	407365600	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas mendocina DLHK	400345472	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas mendocina NK-01	330502866	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas mendocina ymp	146306877	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas protegens Pf-5	70731666	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas pseudoalcaligenes CECT 5344	399520031	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas psychrotolerans L19	359781487	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas putida W619	170722310	Sg10	8-Oxoadenine Deaminase
Pseudomonas sp. Ag1	395798591	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. Chol1	409393717	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM102	398839969	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM17	399010547	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM18	399002584	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM21	398995407	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM24	398989436	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM25	398973358	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM30	398964531	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM33	398952126	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM41(2012)	398938561	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM49	398917336	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM50	398899111	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM55	398890629	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM60	398885429	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM67	398879366	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM74	398871471	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM78	398868653	Sg2	MTA/5'-dAdo/Ado Deaminase
Pseudomonas sp. GM79	398859092	Sg2	MTA/5'-dAdo/Ado Deaminase

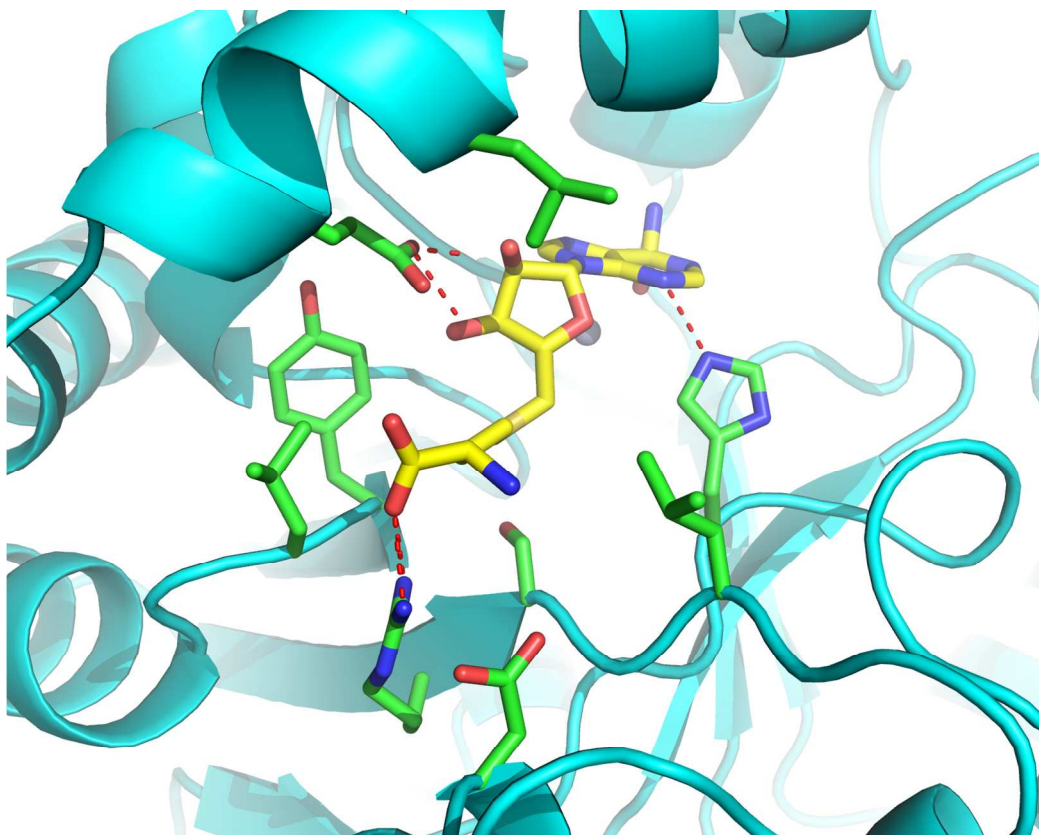
<i>Pseudomonas</i> sp. GM80	398850871	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> sp. GM84	398843691	Sg10	8-Oxoadenine Deaminase
<i>Pseudomonas</i> sp. HYS	409426090	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> sp. M47T1	388545952	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> sp. PAMC 25886	395499790	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> sp. R81	408482975	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> sp. S9	374702041	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri A1501	146282666	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri ATCC 14405 = CCUG 16156	379064775	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri ATCC 17588 = LMG 11199	339494279	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri CCUG 29243	392421516	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri DSM 10701	397687516	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri DSM 4166	386020950	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri KOS6	409778759	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> stutzeri TS44	387967423	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> synxantha BG33R	388470050	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae Cit 7	330953526	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. aceris str. M302273	330972347	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. actinidiae str. M302091	330964795	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. aesculi str. NCPPB 3681	289623729	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. aptata str. DSM 50252	330980274	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. avellanae str. ISPaVe013	407996526	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. avellanae str. ISPaVe037	407996413	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. glycinea str. B076	320323354	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. lachrymans str. M301315	330986668	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. maculicola str. ES4326	330960548	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. mori str. 301020	330889349	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. morsprunorum str. M302280	330877043	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. phaseolicola 1448A	71733895	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. syringae 642	302187663	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. syringae B728a	66046878	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. tabaci str. ATCC 11528	257485851	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> syringae pv. tomato str. DC3000	28868949	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudomonas</i> viridiflava UASWS0038	410092253	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudoxanthomonas</i> spadix BD-a59	357417314	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pseudoxanthomonas</i> suwonensis 11-1	319786813	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Pyrococcus</i> abyssi GE5	14520861	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> furiosus DSM 3638	18977910	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> horikoshii OT3	14591297	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> horikoshii OT3	161789036	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> sp. NA2	332157744	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> sp. ST04	389852822	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Pyrococcus</i> yayanosii CH1	337284243	Sg1b	SAH/MTA/5'-dAdo Deaminase
<i>Reinekea</i> blandensis MED297	88800757	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Rhodanobacter</i> fulvus Jip2	389793007	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Rhodanobacter</i> sp. 115	389721634	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Rhodanobacter</i> sp. 116-2	389797714	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Rhodanobacter</i> spathiphylli B39	389774472	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Rhodanobacter</i> thiooxydans LCS2	389806384	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Ricinus</i> communis	255594903	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Roseiflexus</i> castenholzii DSM 13941	156744101	Sg7	5'-dAdo/Ado Deaminase
<i>Roseiflexus</i> sp. RS-1	148658401	Sg7	5'-dAdo/Ado Deaminase
<i>Saccharophagus</i> degradans 2-40	90021794	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Salinisphaera</i> shabanensis E1L3A	335420684	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Selenomonas</i> ruminantium subsp. lactilytica TAM6421	383754018	Sg1a	SAH/MTA Deaminase
<i>Selenomonas</i> sp. CM52	402833860	Sg1a	SAH/MTA Deaminase
<i>Selenomonas</i> sp. FOBRC6	401564592	Sg1a	SAH/MTA Deaminase
<i>Selenomonas</i> sp. FOBRC9	402301912	Sg1a	SAH/MTA Deaminase
<i>Selenomonas</i> sp. oral taxon 137 str. F0430	313895544	Sg1a	SAH/MTA Deaminase
<i>Simiduia</i> agarivorans SA1 = DSM 21679	410663080	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Sporolactobacillus</i> inulinus CASD	374710320	Sg9	Guanine Deaminase
<i>Sporolactobacillus</i> vineae DSM 21990 = SL153	404330030	Sg9	Guanine Deaminase
<i>Stenotrophomonas</i> maltophilia D457	386719260	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Stenotrophomonas</i> maltophilia JV3	344208162	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Stenotrophomonas</i> maltophilia K279a	190575196	Sg2	MTA/5'-dAdo/Ado Deaminase
<i>Stenotrophomonas</i> maltophilia R551-3	194366514	Sg2	MTA/5'-dAdo/Ado Deaminase

Stenotrophomonas sp. SKA14	254522291	Sg2	MTA/5'-dAdo/Ado Deaminase
Stigmatella aurantiaca DW4/3-1	115373684	Sg9	Guanine Deaminase
Stigmatella aurantiaca DW4/3-1	310823592	Sg9	Guanine Deaminase
Streptococcus anginosus 1_2_62CV	319939966	Sg5	5'-dAdo/Ado Deaminase
Streptococcus anginosus F0211	315222254	Sg5	5'-dAdo/Ado Deaminase
Streptococcus anginosus SK1138	400374374	Sg5	5'-dAdo/Ado Deaminase
Streptococcus anginosus SK52 = DSM 20563	335032486	Sg5	5'-dAdo/Ado Deaminase
Streptococcus anginosus subsp. whileyi CCUG 39159	383340131	Sg5	5'-dAdo/Ado Deaminase
Streptococcus cristatus ATCC 51100	322385066	Sg5	5'-dAdo/Ado Deaminase
Streptococcus gordonii str. Challis substr. CH1	157150044	Sg5	5'-dAdo/Ado Deaminase
Streptococcus infantis ATCC 700779	322388284	Sg5	5'-dAdo/Ado Deaminase
Streptococcus infantis SK1076	335029092	Sg5	5'-dAdo/Ado Deaminase
Streptococcus infantis SK970	343391918	Sg5	5'-dAdo/Ado Deaminase
Streptococcus infantis X	343400182	Sg5	5'-dAdo/Ado Deaminase
Streptococcus intermedius F0413	355363819	Sg5	5'-dAdo/Ado Deaminase
Streptococcus intermedius JTH08	392428100	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis ATCC 6249	306829721	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis B6	289167624	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis bv. 2 str. F0392	340771138	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis bv. 2 str. SK95	342833418	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis NCTC 12261	307701897	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK1073	339457332	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK1080	339455936	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK321	307706305	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK564	307708937	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK569	342837099	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK575	383350029	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK579	383353478	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK597	307705065	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SK616	383344035	Sg5	5'-dAdo/Ado Deaminase
Streptococcus mitis SPAR10	395876851	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis ATCC 35037	293365671	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK10	383186488	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK100	383184224	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK1074	383347755	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK255	334265937	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK304	400367786	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK313	343388443	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis SK610	383183371	Sg5	5'-dAdo/Ado Deaminase
Streptococcus oralis Uo5	331266145	Sg5	5'-dAdo/Ado Deaminase
Streptococcus peroris ATCC 700780	322392322	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2061376	395594508	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2061617	395600874	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2070005	395573856	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2070035	395574791	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2070108	395579606	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2070335	395583699	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2070531	395587592	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2071004	395602303	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2080913	395607217	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2081074	395608263	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2082170	395613768	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2082239	395613286	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 2090008	395575076	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 459-5	381316034	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae 70585	225859123	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae ATCC 700669	221232098	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae CDC0288-04	183603522	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae CDC3059-06	168493257	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae CGSP14	182684315	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae D39	116515507	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae G54	194397682	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA05578	379637156	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA13224	379552008	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA13637	353812129	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA16531	353769117	Sg5	5'-dAdo/Ado Deaminase

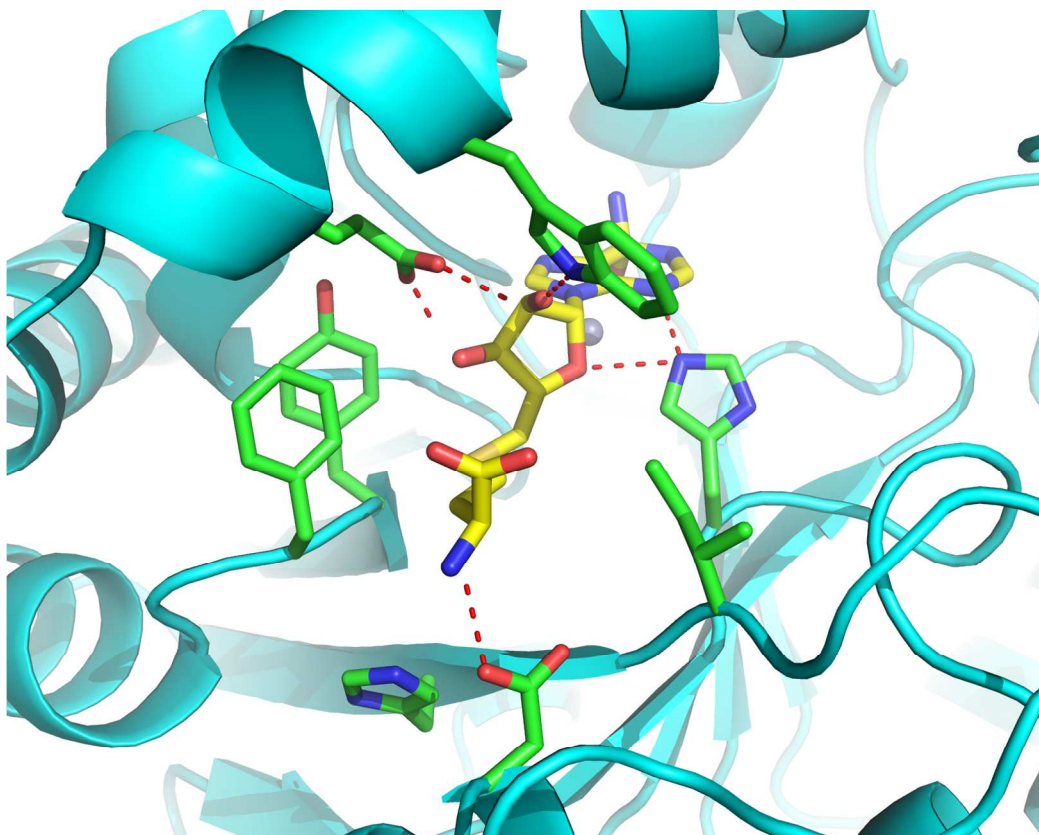
Streptococcus pneumoniae GA17328	353827378	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA17570	332073663	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA40028	379574886	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA40410	379578678	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA41277	353838513	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA41301	332074936	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA41317	332200799	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA41437	353841597	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA43380	353849068	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA44452	353764072	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA47368	332201809	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA47461	379595656	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA47502	353748250	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA47522	379599992	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA47597	379599212	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA52306	353867138	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA54354	395889185	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA60080	395900240	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae GA60132	395909036	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae gamPNI0373	410476740	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae Hungary19A-6	169833999	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae INV104	387626615	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae JJA	225854804	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae MLV-016	183603825	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae Netherlands15B-37	353872354	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae P1031	225856991	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae R6	15458849	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae R6	161410744	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP11-BS70	148997592	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP14-BS69	149004511	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP18-BS74	149006995	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP19-BS75	149011588	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP23-BS72	149019308	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP3-BS71	148985696	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP6-BS73	148989473	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SP9-BS68	148993087	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae SPNA45	405760708	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae TCH8431/19A	298502696	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pneumoniae TIGR4	111656887	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pseudopneumoniae IS7493	342163987	Sg5	5'-dAdo/Ado Deaminase
Streptococcus pseudopneumoniae SK674	383937960	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis ATCC 49296	315613384	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1	327459442	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1056	332358175	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1057	327459045	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1058	327490642	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1059	332364739	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK1087	328945851	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK115	325689424	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK150	325693741	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK330	327468567	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK353	324990301	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK355	332364426	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK36	125717247	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK405	324992129	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK49	332363176	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK678	324994224	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis SK72	325688420	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sanguinis VMC66	323353448	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. 2_1_36FAA	262281915	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. AS14	401682181	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. BS35b	401684914	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. C300	322375454	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. F0441	410869346	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. GMD1S	406587711	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. GMD2S	404468846	Sg5	5'-dAdo/Ado Deaminase

Streptococcus sp. GMD6S	406576640	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. M143	270292519	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. oral taxon 056 str. F0418	339641238	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. oral taxon 058 str. F0407	358464559	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. oral taxon 071 str. 73H25AP	306825008	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. SK140	385260114	Sg5	5'-dAdo/Ado Deaminase
Streptococcus sp. SK643	385262097	Sg5	5'-dAdo/Ado Deaminase
Sulfobacillus acidophilus DSM 10332	379007998	Sg9	Guanine Deaminase
Sulfobacillus acidophilus TPY	339627639	Sg9	Guanine Deaminase
Sulfuricella denitrificans skB26	394989067	Sg2	MTA/5'-dAdo/Ado Deaminase
Sutterella parvirubra YIT 11816	378822009	Sg2	MTA/5'-dAdo/Ado Deaminase
Sutterella wadsworthensis 2_1_59BFAA	404657153	Sg2	MTA/5'-dAdo/Ado Deaminase
Sutterella wadsworthensis 3_1_45B	319942536	Sg2	MTA/5'-dAdo/Ado Deaminase
Symbiobacterium thermophilum IAM 14863	51892841	Sg1a	SAH/MTA Deaminase
Syntrophobotulus glycolicus DSM 8271	325290416	Sg1a	SAH/MTA Deaminase
Syntrophomonas wolfei subsp. wolfei str. Goettingen	114566319	Sg1a	SAH/MTA Deaminase
Syntrophothermus lipocalidus DSM 12680	297617458	Sg1a	SAH/MTA Deaminase
Tepidanaerobacter acetatoxydans Re1	332799863	Sg1a	SAH/MTA Deaminase
Teredinibacter turnerae T7901	254785507	Sg2	MTA/5'-dAdo/Ado Deaminase
Thauera sp. MZ1T	217970136	Sg2	MTA/5'-dAdo/Ado Deaminase
Thermacetogenium phaeum DSM 12270	410667372	Sg1a	SAH/MTA Deaminase
Thermaerobacter marianensis DSM 12885	317121933	Sg1a	SAH/MTA Deaminase
Thermincola potens JR	296133555	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter ethanolicus CCSD1	256751722	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter ethanolicus JW 200	326389977	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter italicus Ab9	289578629	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter mathranii subsp. mathranii str. A3	297544852	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter pseudethanolicus ATCC 33223	167037289	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter tengcongensis MB4	20808022	Sg1a	SAH/MTA Deaminase
Thermoanaerobacter wiegellii Rt8.B1	345017876	Sg1a	SAH/MTA Deaminase
Thermococcus barophilus MP	315231643	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus gammatolerans EJ3	240102195	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus kodakarensis KOD1	57641826	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus litoralis DSM 5473	375084151	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus onnurineus NA1	212224804	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus sibiricus MM 739	242399953	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus sp. 4557	341582507	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus sp. AM4	223477357	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus sp. CL1	390961208	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermococcus zilligii AN1	409096367	Sg1b	SAH/MTA/5'-dAdo Deaminase
Thermoplasma acidophilum	10640374	Sg11	SAH Deaminase
Thermoplasma acidophilum DSM 1728	16082586	Sg11	SAH Deaminase
Thermoplasma volcanium GSS1	13541346	Sg11	SAH Deaminase
Thermosinus carboxydivorans Nor1	121535792	Sg1a	SAH/MTA Deaminase
Thermosiphon africanus H17ap60334	407514376	Sg8	SAH/MTA Deaminase
Thermosiphon africanus TCF52B	217077947	Sg8	SAH/MTA Deaminase
Thermosiphon melanesiensis B1429	150021441	Sg8	SAH/MTA Deaminase
Thermotoga lettingae TMO	157363801	Sg8	SAH/MTA Deaminase
Thermotoga maritima MSB8	15643698	Sg8	SAH/MTA Deaminase
Thermotoga naphthophila RKU-10	281413203	Sg8	SAH/MTA Deaminase
Thermotoga neapolitana DSM 4359	222100614	Sg8	SAH/MTA Deaminase
Thermotoga petrophila RKU-1	148270922	Sg8	SAH/MTA Deaminase
Thermotoga sp. EMP	403252676	Sg8	SAH/MTA Deaminase
Thermotoga sp. RQ2	170289617	Sg8	SAH/MTA Deaminase
Thermotoga thermarum DSM 5069	338730352	Sg8	SAH/MTA Deaminase
Thioalkalivibrio sp. K90mix	289208680	Sg2	MTA/5'-dAdo/Ado Deaminase
Thioalkalivibrio sulfidophilus HL-EbGr7	220934703	Sg2	MTA/5'-dAdo/Ado Deaminase
Thioalkalivibrio thiocyanoxidans ARh 4	350560955	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiobacillus denitrificans ATCC 25259	74316965	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiocapsa marina 5811	344339504	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiocystis violascens DSM 198	390951578	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiorhodococcus dreswii AZ1	345869285	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiorhodospira sibirica ATCC 700588	350553685	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiorhodovibrio sp. 970	381157376	Sg2	MTA/5'-dAdo/Ado Deaminase
Thiothrix nivea DSM 5205	386815608	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	407007146	Sg10	8-Oxoadenine Deaminase

uncultured bacterium	406883814	Sg1b	SAH/MTA/5'-dAdo Deaminase
uncultured bacterium	406902473	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	406915765	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	406941479	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	406943346	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	406946171	Sg2	MTA/5'-dAdo/Ado Deaminase
uncultured bacterium	406982005	Sg9	Guanine Deaminase
uncultured haloarchaeon	148508286	Sg1b	SAH/MTA/5'-dAdo Deaminase
uncultured haloarchaeon	148508263	Sg9	Guanine Deaminase
Veillonella atypica ACS-049-V-Sch6	303231426	Sg1a	SAH/MTA Deaminase
Veillonella atypica ACS-134-V-Col7a	303228970	Sg1a	SAH/MTA Deaminase
Veillonella parvula ACS-068-V-Sch12	333977040	Sg1a	SAH/MTA Deaminase
Veillonella parvula ATCC 17745	282850234	Sg1a	SAH/MTA Deaminase
Veillonella parvula DSM 2008	269798007	Sg1a	SAH/MTA Deaminase
Veillonella sp. 3_1_44	294793747	Sg1a	SAH/MTA Deaminase
Veillonella sp. 6_1_27	294791887	Sg1a	SAH/MTA Deaminase
Veillonella sp. ACP1	401679851	Sg1a	SAH/MTA Deaminase
Veillonella sp. oral taxon 158 str. F0412	313894498	Sg1a	SAH/MTA Deaminase
Veillonella sp. oral taxon 780 str. F0422	342214436	Sg1a	SAH/MTA Deaminase
Xanthomonas albilineans GPE PC73	285018688	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas axonopodis pv. citri str. 306	21243112	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas axonopodis pv. citrumelo F1	346725272	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas axonopodis pv. malvacearum str. GSPB2388	410700374	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas axonopodis pv. punicae str. LMG 859	390992333	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. campestris str. ATCC 33913	21231708	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. campestris str. B100	188991303	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. musacearum NCPPB 4381	289671283	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. raphani 756C	384428174	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. vasculorum NCPPB 702	289665703	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas campestris pv. vesicatoria str. 85-10	78048131	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas citri pv. mangiferaeindicae LMG 941	381171484	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas fuscans subsp. aurantifolii str. ICPB 11122	294624431	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas gardneri ATCC 19865	325921158	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas oryzae pv. oryzae KACC 10331	58582326	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas oryzae pv. oryzae MAFF 311018	84624206	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas oryzae pv. oryzae PXO99A	188576191	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas oryzae pv. oryzicola BLS256	384419078	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas perforans 91-118	325926496	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas sacchari NCPPB 4393	380512828	Sg2	MTA/5'-dAdo/Ado Deaminase
Xanthomonas vesicatoria ATCC 35937	325918739	Sg2	MTA/5'-dAdo/Ado Deaminase
Xylella fastidiosa 9a5c	15839062	Sg2	MTA/5'-dAdo/Ado Deaminase
Xylella fastidiosa Dixon	71276240	Sg2	MTA/5'-dAdo/Ado Deaminase
Xylella fastidiosa M23	182682097	Sg2	MTA/5'-dAdo/Ado Deaminase
Xylella fastidiosa Temecula1	28199370	Sg2	MTA/5'-dAdo/Ado Deaminase
Yokenella regensburgei ATCC 43003	365847690	Sg10	8-Oxoadenine Deaminase

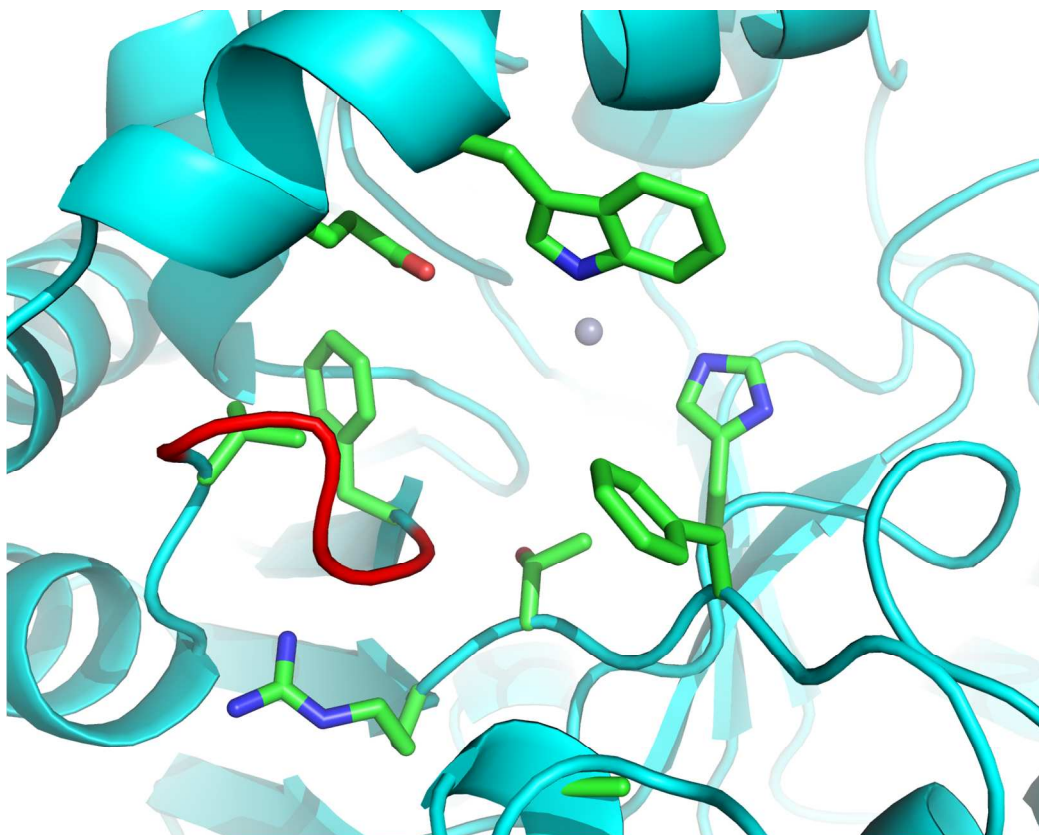


**Figure S1.** In the modeled active sites of Cthe1199 (cyan cartoon, green stick), the carboxylate and the amino groups of the homocysteine moiety of the docked SAH (yellow stick) interact with Arg-147 and Asp-159.

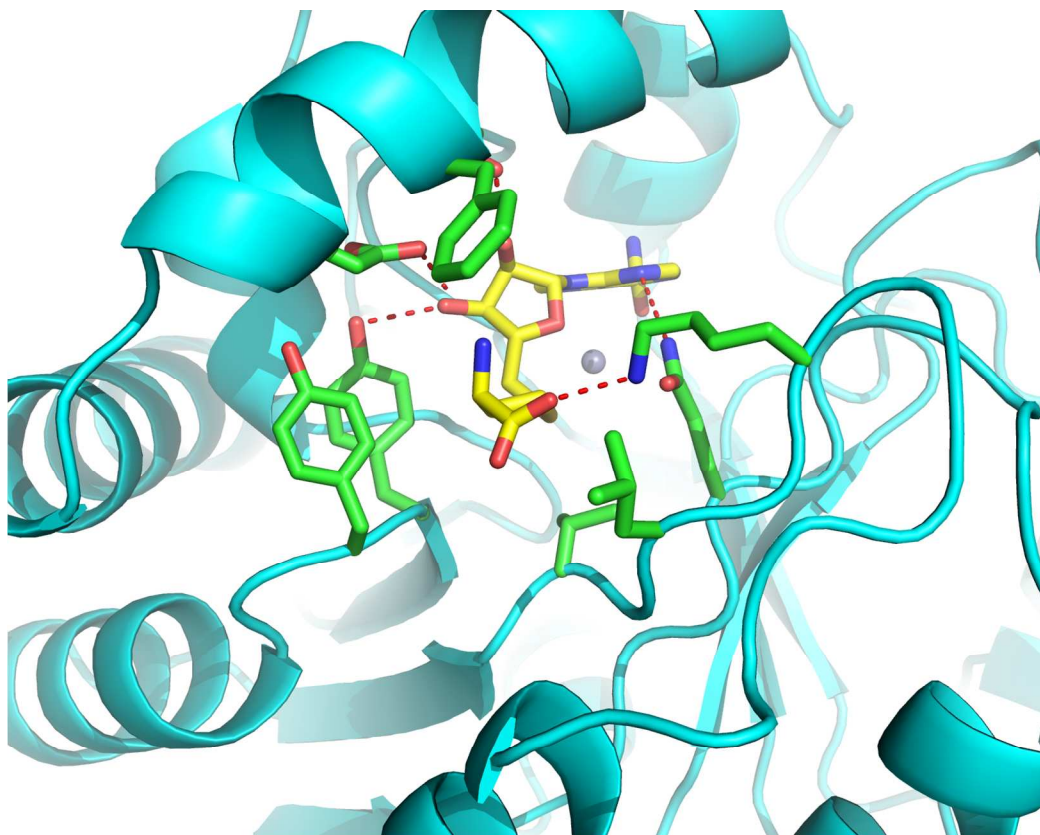


**Figure S2.** In the modeled active sites of Mm2279 (cyan cartoon, green stick), the amino group of the homocysteine moiety of the docked SAH (yellow stick) interacts with His-169 and Asp-183.

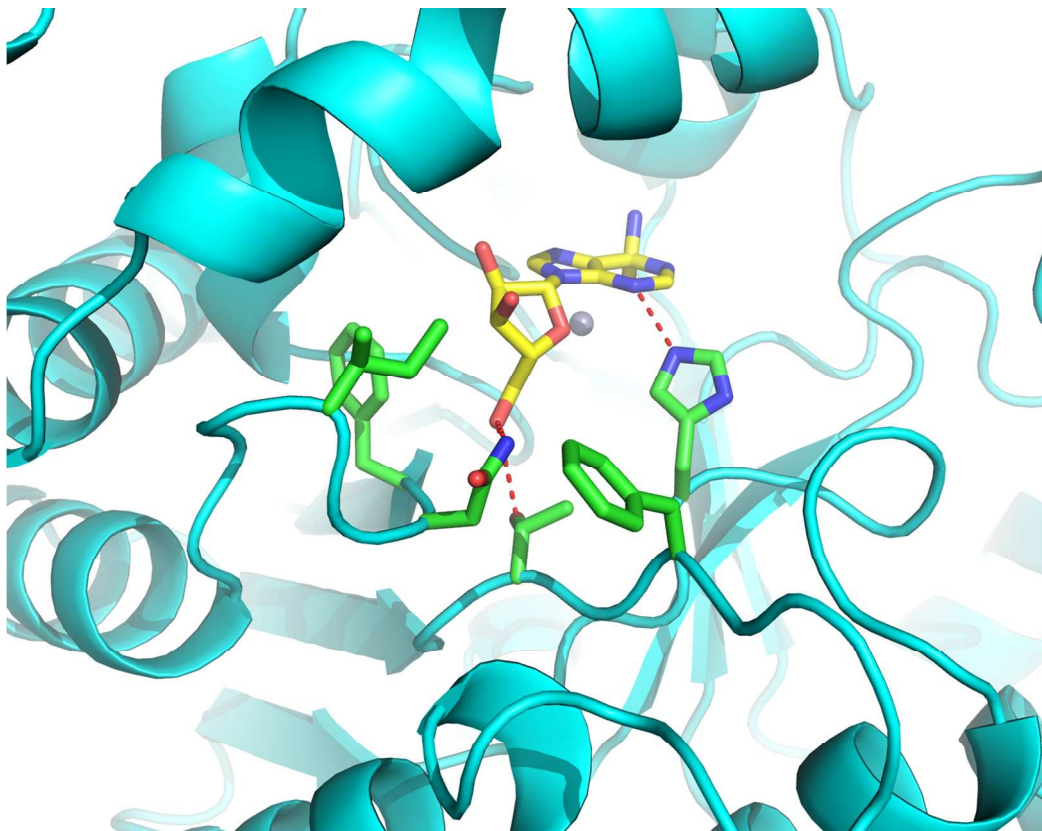




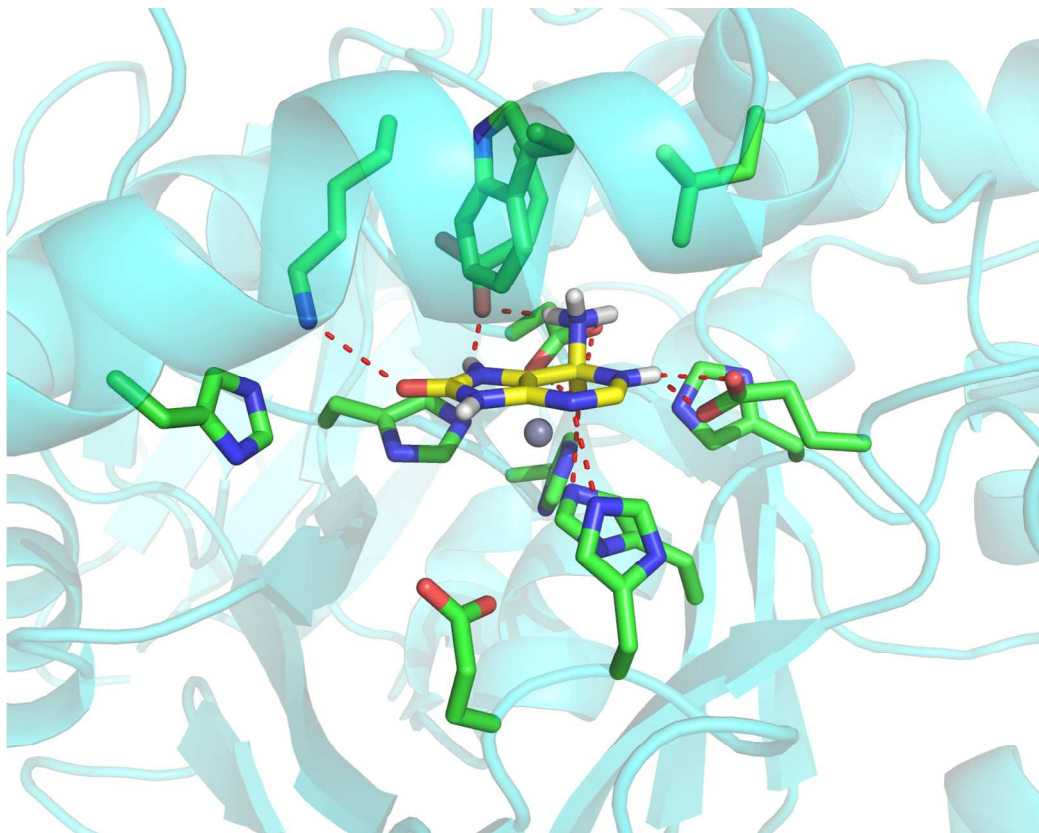
**Figure S3.** In the modeled active sites of Bc1793 (cyan cartoon, green stick), the inserted loop (red cartoon) from residue positions 126-129 prevents the conserved Arg-150 from interacting with bound substrates.



**Figure S4.** In the modeled active sites of Tvn0515 (cyan cartoon, green stick), the carboxylate group in the homocysteine moiety of the docked SAH (yellow stick) forms a hydrogen bond with the sidechain from Lys-145, while the amino group in the homocysteine moiety of the docked SAH was exposed to the protein surface and formed cation- $\pi$  interaction with the sidechain from Phe-85 .



**Figure S5.** In the modeled active sites of Bc1793 (cyan cartoon, green stick), the 5'-hydroxyl group of the docked adenosine forms a hydrogen bond with the side chain of the conserved Thr-151. The neighboring Phe-153 could prevent the binding of MTA.



**Figure S6.** In the modeled active sites of Avi5431 (transparent cyan cartoon, solid green stick), the N3 nitrogen and the C8 carbonyl oxygen from the purine ring of the docked 8-oxoadenine interact with His-190 and Lys-308.

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