

Industry

**Federal & State
Government**

Research Translation Core

Seminars
Annual
Workshops
Meeting

**Molecular
Biology
Tools
Repository**

International

~Chulabhorn Research Institute
~Japanese National Institute
of Health Sciences
~Korean Food & Drug
Administration

Industry

~Microbiology
~Environmental Engineering

Academia

~Microbiology
~Environmental Engineering
~Classroom

Project 1: Characterization of the Pathways Linking Ah Receptor Activation with Altered B Cell Differentiation Using an Integrated Experimental and Computational Modeling Approach

Project 2: Dissecting the Signaling Network for Ah Receptor-mediated B-cell Toxicity

Project 3: Non-Additive Ah Receptor Ligand Interactions

Project 4: Influence of Ah Receptor Ligands on Inflammatory Responses: Consequences for Tissue Injury and Gene Expression

Project 5: A Proteomic Analysis of the AHR signaling Network

Project 6: Molecular Insight into Polyaromatic Toxicant Degradation by Microbial Communities

Project 7: Geochemical Controls on the Adsorption, Bioavailability, and Long-term Environmental Fate of Dioxins, PCBs, and PAHs

Core A:
Administrative Core

Core C: Computational Modeling of Mammalian Biomolecular Responses Core

Core D: Biomedical Informatics Core

Core E: Environmental Molecular Analysis Core

**MICHIGAN STATE
UNIVERSITY**

**Center for Integrative
Toxicology**

Water Quality Program

**Environmental Science
Policy Program**

Basic Science Faculty

Functional Gene Pipeline Tutorial 1



Part I - BASIC FUNCTIONS

- Basic features
- Display options
- Sorting options
- Filter options



Functional Gene Pipeline/Repository

Begin with these gene links:

Version 2.1 -- GenBank Rel. 155.0 (as of 10 Sept 06)
[Access archived gene files here](#)

[What is the Functional Gene Pipeline/Repository \(FGPR\)?](#)
 (and other important FAQs)

Antibiotic resistances

gene	contributor
intI	Carlos Rodriguez-Minguel
tetM	Carlos Rodriguez-Minguel
tetQ	Carlos Rodriguez-Minguel
tetW	Carlos Rodriguez-Minguel

Biodegradation

gene	contributor
benA	Stephan Gantner
bph	Gerben Zylstra
bphA1	Stephan Gantner
bphA2	Stephan Gantner
cprA	Tamara Tsoi Cole
cprB	Tamara Tsoi Cole
npaH	Gerben Zylstra
ppaH	Gerben Zylstra

Biogeochemical cycles

gene	contributor
dsrA	Alexander Loy/Michael Wagner
dsrB	Alexander Loy/Michael Wagner
dsrA_dsrB	Alexander Loy/Michael Wagner
mcrA	Blaz Stres
napA	Laurent Philippot
narG	Laurent Philippot
nirK	Gesche Braker
nirS	Veronica Gruntzig
norB	Gesche Braker
nosZ	Blaz Stres
nrfA	Joel Klappenbach

Phylogentic markers

gene	contributor
fusA	Scott Santos/Howard Ochman
ileS	Scott Santos/Howard Ochman
lepA	Scott Santos/Howard Ochman
leuS	Scott Santos/Howard Ochman
pyrG	Scott Santos/Howard Ochman
recA	Scott Santos/Howard Ochman
recG	Scott Santos/Howard Ochman
rplB	Scott Santos/Howard Ochman
rpoB	Scott Santos/Howard Ochman



Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp?sessionId=681E4E37F491E969ACA789FE1079

Functional G. Repository Apple (210) Amazon eBay Yahoo! News (526)



Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrfA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		



Functional Gene Pipeline/Repository

[[help](#) | [FGPR home](#) | [RDP home](#)]

:: Results

Your Search Topic: nrFA_v1.8 :: Showing 123 of 264 Total Results

[Analyze Selection](#)

[Jump to Display/Filtering Options](#)

[Select All](#)

Motif1: [Cytochrom_C552](#)

= HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp;jsessionid=681E4E37F491E969ACA789FE1079

Functional C. Repository Apple (210) Amazon eBay Yahoo! News (526)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrfa_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

= HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_005905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp?sessionId=681E4E37F491E969ACA789FE1079

Functional G... Repository Apple (210) Amazon eBay Yahoo! News (520)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrFA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View / Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezzi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		



Functional Gene Pipeline/Repository

[\[help | FGPR home | RDP home \]](#)

:: Results

 Your Search Topic: **nrFA_v1.8** :: Showing 123 of 264 Total Results

[Analyze Selection](#)
[Jump to Display/Filtering Options](#)
[Select All](#)

 Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View / Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c552 [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CA009261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CG378667	putative formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum S59]	Photobacterium profundum S59	1	99.8	487	Vezi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		



Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrFA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: Cytochrom_C552

= HMM training sequence
 = New to this release

Select	Score	New HIT	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McGeehan,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezzi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McGeehan,M.	1234.9		

	874.9	AAW35982	CP000025	subsp. jejuni CF93-6] cytochrome c552 [Campylobacter jejuni RM1221]	CF93-6 Campylobacter jejuni RM1221	1	100	610	Fouts,D.E.	156.9		
	874.2	ZP_01070960	NZ_AANQ01000001	nitrite reductase (cytochrome; ammonia-forming) [Campylobacter jejuni subsp. jejuni HB93-13]	Campylobacter jejuni subsp. jejuni HB93-13	1	100	610	Fouts,D.	156.9		
	871.7	AAS95106	AE017285	cytochrome c nitrite reductase, catalytic subunit NIRA, putative [Desulfovibrio vulgaris subsp. vulgaris str. Hildenborough]	Desulfovibrio vulgaris subsp. vulgaris str. Hildenborough	1	100	524	Heidelberg,J.F.	160.3		
	869.9	ZP_01069351	NZ_AANK01000001	cytochrome c552 [Campylobacter jejuni subsp. jejuni 260.94]	Campylobacter jejuni subsp. jejuni 260.94	1	100	610	Fouts,D.	154.3		
	863.7	10AHS		Chain B, Cytochrome C Nitrite Reductase From Desulfovibrio Desulfuricans Atcc: 27774: The Relevance Of The Two Calcium Sites In The Structure Of The Catalytic Subunit (Nirfa).	Desulfovibrio desulfuricans	1	100	519	Cunha,C.	149.4		
	857.8	ZP_00640360	NZ_AAV01000029	Nitrite reductase (cytochrome; ammonia-forming) [Shewanella frigidimarina NCIMB 400]	Shewanella frigidimarina NCIMB 400	1	82	394	Copeland,A.	830.7		
	857.8	ZP_00640360	NZ_AAEW02000013	Nitrite reductase (cytochrome; ammonia-forming) [Desulfuromonas acetoxidans DSM 684]	Desulfuromonas acetoxidans DSM 684	1	100	500	Copeland,A.	837.9		
	854.6	CAC87646	AJ316232	cytochrome c nitrite reductase catalytic subunit [Desulfovibrio desulfuricans]	Desulfovibrio desulfuricans	1	99.8	514	Cunha,C.	149.4		
	847.0	CAG35073	CRS22870	probable catalytic subunit of cytochrome c nitrite reductase [Desulfotalea psychrophila L5v54]	Desulfotalea psychrophila L5v54	1	100	508	Rabus,R.	849.1		
	821.6	ZP_00367407	NZ_AAFL01000002	probable periplasmic cytochrome C Cj1357c [Campylobacter coli RM2228]	Campylobacter coli RM2228	1	100	610	Fouts,D.E.	151.9		

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp?sessionId=681E4E37F491E969ACA789FE1079

Functional G... Repository Apple (210) Amazon eBay Yahoo! News (520)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrFA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View / Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67	1	100	478	Chiu,C.H.	1254.7		...
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		...
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		...
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum SS9]	Photobacterium profundum SS9	1	99.8	487	Vezzi,A.	957.9		...
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		...
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		...

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp?sessionId=681E4E37F491E969ACA789FE1079

Functional C. Repository Apple (210) Amazon eBay Yahoo! News (126)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrfA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_006905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-B67	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CAD09261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum S59]	Photobacterium profundum S59	1	99.8	487	Vezz,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AA0P01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp;sessionId=681E4E37F491E969ACA789FE1079

Functional C. Repository Apple (210) Amazon eBay Yahoo! News (526)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: **nrfa_v1.8** :: Showing 123 of 264 Total Results

Motif1: **Cytochrom_C552**

= HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_005905	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867	1	100	478	Chiu,C.H.	1254.7		...
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McDelland,M.	1253.4		...
<input type="checkbox"/>	1046.8		CA009261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1248.1		...
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum 559]	Photobacterium profundum 559	1	99.8	487	Vezi,A.	957.9		...
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2856]	Haemophilus influenzae R2856	1	100	511	Erwin,A.L.	1378.9		...
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McDelland,M.	1234.9		...

Functional Gene Pipeline / Repository

http://flyingcloud.cme.msu.edu/fungene/main.jsp?sessionId=681E4E37F491E969ACA789FE1079

Functional C. Repository Apple (210) Amazon eBay Yahoo! News (525)

Functional Gene Pipeline/Repository

[help | FGPR home | RDP home]

:: Results

Your Search Topic: nrfA_v1.8 :: Showing 123 of 264 Total Results

Analyze Selection Jump to Display/Filtering Options Select All

Motif1: **Cytochrom_C552**

 = HMM training sequence
 = New to this release

Select	Score	New Hit	PID	NID	Definition	Organism	Occ.	% of HMM Match	Size (aa)	Reference	Motif1	Notes	View/Edit
<input type="checkbox"/>	1049.5		YP_219143	NC_005805	nitrite reductase periplasmic cytochrome c(552) [Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867]	Salmonella enterica subsp. enterica serovar Choleraesuis str. SC-867	1	100	478	Chiu,C.H.	1254.7		
<input type="checkbox"/>	1049.0		NP_463142	NC_003197	nitrite reductase periplasmic cytochrome c552 [Salmonella typhimurium LT2]	Salmonella typhimurium LT2	1	100	478	McClelland,M.	1253.4		
<input type="checkbox"/>	1046.8		CA009261	AL627282	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar Typhi]	Salmonella enterica subsp. enterica serovar Typhi	1	100	478	Parkhill,J.	1246.1		
<input type="checkbox"/>	1045.4		CAG19669	CR378667	putative Formate-dependent nitrite reductase,periplasmic cytochrome c552 subunit [Photobacterium profundum 559]	Photobacterium profundum 559	1	99.8	487	Vezi,A.	957.9		
<input type="checkbox"/>	1038.7		ZP_00156911	NZ_AADP01000001	COG3303: Formate-dependent nitrite reductase, periplasmic cytochrome c552 subunit [Haemophilus influenzae R2866]	Haemophilus influenzae R2866	1	100	511	Erwin,A.L.	1378.9		
<input type="checkbox"/>	1038.1		AAV79838	CP000026	cytochrome c552 precursor [Salmonella enterica subsp. enterica serovar	Salmonella enterica subsp. enterica serovar	1	100	478	McClelland,M.	1234.9		

Go to "http://flyingcloud.cme.msu.edu/fungene/gbnuodata.jsp?seqAccess=NC_006905&seq_start=4450715&seq_stop=4452115&strand=1"



Functional Gene Pipeline/Repository

Use browser's **Back** button to return to list.

:: Sequence info

LOCUS NC_006905 1437 bp DNA linear BCT 18-JAN-2006
DEFINITION *Salmonella enterica* subsp. *enterica* serovar *Choleraesuis* str. SC-D67, complete genome.
ACCESSION NC_006905 REGION: 4450715..4452151
VERSION NC_006905.1 GI:62178570
PROJECT GenomeProject:9618
KEYWORDS .
SOURCE *Salmonella enterica* subsp. *enterica* serovar *Choleraesuis* str. SC-D67
ORGANISM *Salmonella enterica* subsp. *enterica* serovar *Choleraesuis* str. SC-D67
 Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; *Salmonella*.
REFERENCE 1 (bases 1 to 1437)
AUTHORS Chiu,C.H., Tang,P., Chu,C., Wu,S., Bao,Q., Yu,J., Chou,Y.Y., Wang,H.S. and Lee,Y.S.
TITLE The genome sequence of *Salmonella enterica* serovar *Choleraesuis*, a highly invasive and resistant zoonotic pathogen
JOURNAL *Nucleic Acids Res.* 33 (5), 1690-1698 (2005)
PMID 15781495
REFERENCE 2 (bases 1 to 1437)
CONSTRM NCBI Genome Project
TITLE Direct Submission
JOURNAL Submitted (04-APR-2005) National Center for Biotechnology Information, NIH, Bethesda, MD 20894, USA
REFERENCE 3 (bases 1 to 1437)
AUTHORS Chiu,C.-H., Tang,P., Chu,C., Bao,Q., Wu,S., Yu,J., Chou,Y.-Y., Wang,H.-S. and Lee,Y.-S.
TITLE Direct Submission
JOURNAL Submitted (03-SEP-2004) Chang Gung Genomic Medical Center, No. 5, Fu-Shing St., Kweihsan, Taoyuan 333, Taiwan
COMMENT PROVISIONAL REFSEQ: This record has not yet been subject to final NCBI review. The reference sequence was derived from AEO17220.
COMPLETENESS: full length.
FEATURES Location/Qualifiers
source 1..1437
 /organism="Salmonella enterica subsp. enterica serovar

```

/strain="SC-B67"
/serovar="Choleraesuis"
/sub_species="enterica"
/db_xref="taxon:321314"
gene
1..1437
/gene="nrfA"
/locus_tag="SC4156"
/db_xref="GeneID:3336702"
CDS
1..1437
/gene="nrfA"
/locus_tag="SC4156"
/note="IPR000345: Cytochrome c heme-binding site"
/codon_start=1
/transl_table=11
/product="nitrite reductase periplasmic cytochrome c(552)"
/protein_id="YP_219143.1"
/db_xref="GI:62162726"
/db_xref="GeneID:3336702"
/translation="MARKILRARRFFSLIFPFFITSVYAEQTPVSAKIVVEAKNET
FAPQHFDQYQSHKATSEQSAREDALAEDPRLVILKAGYFFSRDYNKPRGHAYAVTDVR
ETLRTGAPKTAEDGPLPMACHSCKSPQVARIQQEGEDGYFHGKMARGGPEIVNDLQC
ADCHNTASDDFAQGGKPALTLSRPYAERAMEAIKGPPEKAGRFDDQSMVCGGCHVEYYP
DCKNKAVKVPWDEGKVENMEDYYDAIAPSDWNTSLSKTPMLKAGHPPEYETWSAGIHC
KSNVTCIDCSNPKVQNAEDKLYDHRKIGNPFDNFAGTCANCHTQOKASLQKRVVAERKQ
AIEDLKIKVEDQLVHAHFEAKAANDAGATDAIDKPIIANDIRHAQWRWOLAIASGIIHM
EAPEDGLRMLGSAMDKAADARTKLARLLATWGITHREIPLPDISTKEKAQKAIGLMMQQ
INAERKQDFLKVVPQWEDQARKWLLSQ"

```

ORIGIN

```

1 atggosagga aaacactacg cgcacgcggt ttcttcagcc ttatatttcc tttttttctc
61 attaacctctg tttacgctga gcaaacgcct gtatccgcaa aaacccgttac tgtggaagcg
121 aaaaatgaaa cgttccgccc tcaacacccc gaccaatctc agtccatgaaa agcgacgtca
181 gaacagctctg cccgtgaaga tgcgctggcg gaagaccctc gctctggtgat cctgtggcg
241 gctatccctc tctccctgga ctacaacaaa ccacgpcggc acgctatgac ggtaacctgac
301 gtgcgggaaa cgtcgctgac cggcgcgcca aaaaagcggc aagaagggccc gttgcgatg
361 gctcgtctga gctgtaaaag cccctgatgtc gcgcgccctt tccacaaga agggcaagac
421 gctactctcc atggcaaatg ggcgcgpcgc ggcccggaaa ttgtcaacga tttggcctgt
481 gcgcactgtc ataacaccgc gtcggacgat ttgcgccagc gsaagccagc gttaaccttg
541 tgcgcgcccc atgotgaacg ggcgatggag gctatcggca aaccgcttga gaaagccggt
601 cgccttgatc agcaatcgat ggtctcgggt cagtgcccac tggagtaacta ctttgacggt
661 aaaaacaaaag ccgttaaatc tccgtgggac gaagpcatga aggtogaaaa tatggagcaa
721 tactacgaag ccatcgccct ctctgactgg actaacctgc tgtogaaaac cccgatgctc
781 aaagcgcagc acccgggaata tgaacctgg agcgcgggca ttcaacggtta gaacaaagtg
841 accctgatcg actgtccatc gcgcaaaagta cagaacgcgc aagggcaagct ctacaccgac
901 cataaaatcg gcaacccggt cgcacaattc gcgcaaacct gcgccaaactg ccaaccccag
961 gacaaagcgt cccctgcaaaa agtggctggc gaggctaaac aggcgattoa tgaactgaaa
1021 atcaaggttg aagatcagct ggtacatgcg cacttcgaag cgaagccgc atgggatgcg
1081 gggcgcagcag acccgggaat gaaaccgatt ctgaacgata ttgcgccagc ccagctggcgt
1141 tgggatctgg cgttgcgctc acacggtatt catatgcatg ccccggaaga aggtctaacg
1201 atgttaggca gtcgatgga taaagccgc gatgcocgta ctaaactggc gcgactgctg
1261 gcgaccaaaag gcattaccca tgaattccg ctgcgggata ttgcgacgaa agagaagcgc
1321 cagaaaagca ttggtttgaa tatgcaacaa atcaaacgcg agaaagcagg ctctctgaaa
1381 acggtcgtac cgcagtgagg agatcagggc ogtaaaaag gctgttaag ccaataa

```

//

Questions? Comments?
rdpstaff@msu.edu 1-517-432-4998

