

***Mycobacterium tuberculosis* subsp. *tuberculosis*, Strain H37Rv:pEXCF-3416, Transcription Factor Overexpression Mutant**

Catalog No. NR-43475

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Contributor and Manufacturer:

David Sherman, Professor, Seattle Biomedical Research Institute, Seattle, Washington, USA (NIAID/NIH Contract No. HHSN272200800059C)

Product Description:

Bacteria Classification: *Mycobacteriaceae*, *Mycobacterium*

Species: *Mycobacterium tuberculosis* subsp. *tuberculosis*¹

Strain: H37Rv:pEXCF-3416

Gene: Rv3416¹

Original Source: *Mycobacterium tuberculosis* (*M. tuberculosis*) subsp. *tuberculosis*, strain H37Rv was transformed with a C-terminally epitope-tagged expression vector containing Rv3416, a transcriptional regulatory protein, WhiB3.²

Comment: Fidelity of H37Rv:pEXCF-3416 was confirmed by sequencing prior to transformation into *M. tuberculosis*. Following transformation, transcription factor expression was assayed by induction with anhydrotetracycline (ATc). The microarray data obtained indicated that ATc led to 2.32 fold over-expression of Rv3416 (see Table 1 for complete microarray data).

pEXCF-3416 is an ATc inducible episomal vector containing a Gateway[®] recombination (Invitrogen[™]) cassette modified to contain an in-frame C-terminal FLAG epitope tag (see Figure 1 for plasmid map and Table 2 for primer sequences). Rv3416 was selected from a Gateway[®] entry clone library, or was sub-cloned from the H37Rv genome using gene-specific oligonucleotides containing Gateway[®] recombination sequences at the 5' ends, and recombined into this vector to create a C-terminally epitope-tagged expression vector (plasmid EXpression C-terminal Flag Tag: pEXCF).

Further details relating to applications and the construction of the entire TFOE mutant collection can be found in [Nature](#) 499 (2013): 178-183. PubMed: 23823726. Primers recommended for confirmatory sequencing are provided in Table 2.

M. tuberculosis, strain H37Rv, was acquired from the

Colorado State University TB Vaccine Testing and Research Materials Contract and was sequenced by the Broad Institute (GenBank: [CP003248](#)).

Material Provided:

Each vial contains approximately 0.25 mL of bacterial culture in Middlebrook 7H9 liquid medium containing 50 µg/mL hygromycin, 0.2% glycerol, 0.05% Tween80, 0.5% BSA, 0.2% dextrose and 0.085% sodium chloride.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:

NR-43475 was packaged aseptically in plastic 0.5 mL cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:

Media:

Middlebrook 7H9 broth with the ADC supplement, 0.05% Tween80 and 50 µg/mL hygromycin B

Middlebrook 7H10 agar with OADC enrichment and 50 µg/mL hygromycin B or Middlebrook 7H11 agar with OADC enrichment and 50 µg/mL hygromycin B (incorporation of Tween80 in agar is optional)

Incubation:

Temperature: 37°C

Atmosphere: Aerobic with or without 5% CO₂ (some strains may show enhanced growth in the presence of 5% CO₂)

Propagation:

1. Keep vial frozen until ready for use; then thaw.
2. Pipet the vial contents onto an agar plate. Use an aerosol resistant tip to transfer cells from the liquid culture to the plate.
3. Streak the bacteria to grow as a lawn. Place inoculated plates in a sealable bag and place in warm room.
4. Incubate plates at 37°C for 2 to 4 weeks.
5. Once cells have grown, move plates into biosafety cabinet and use a sterile cell scraper to aseptically scrape the cells into the recommended liquid media for use with the transcription factor induction protocol (see [supplementary information](#)).

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium tuberculosis* subsp. *tuberculosis*, Strain H37Rv:pEXCF-3416, Transcription Factor Overexpression Mutant, NR-43475."

Biosafety Level: 3

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services,

Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories](#). 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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References:

1. TubercuList: [Rv3416](#)
2. Galagan, J. E., et al. "The *Mycobacterium tuberculosis* Regulatory Network and Hypoxia." *Nature* 499 (2013): 178-183. PubMed: 23823726.
3. Sherman, D., Personal Communication.
4. Rustad, T. R., et al. "Mapping and Manipulating the *Mycobacterium tuberculosis* Transcriptome using a Transcription Factor Overexpression-Derived Regulatory Network." *Genome Res.* *In press*.
5. Minch, K. J., et al. "The DNA Binding Network of *Mycobacterium tuberculosis*." *Nature Comm.* *In press*.

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Table 1: Transcription Factor Overexpression Mutant Microarray Data¹

NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43288	H37Rv:pEXCF-0019c	Rv0019c	13.24	14.42	1.18
NR-43289	H37Rv:pEXCF-0020c	Rv0020c	13.85	14.55	0.70
NR-43290	H37Rv:pEXCF-0022c	Rv0022c	7.56	14.42	6.86
NR-43291	H37Rv:pEXCF-0023	Rv0023	10.70	14.86	4.16
NR-43292	H37Rv:pEXCF-0038	Rv0038	13.15	14.37	1.22
NR-43293	H37Rv:pEXCF-0042c	Rv0042c	13.20	14.61	1.41
NR-43294	H37Rv:pEXCF-0043c	Rv0043c	12.03	14.77	2.74
NR-43295	H37Rv:pEXCF-0047c	Rv0047c	12.41	14.97	2.56
NR-43296	H37Rv:pEXCF-0054	Rv0054	14.05	14.75	0.70
NR-43297	H37Rv:pEXCF-0067c	Rv0067c	9.91	13.96	4.05
NR-43298	H37Rv:pEXCF-0078	Rv0078	10.01	13.53	3.52
NR-43299	H37Rv:pEXCF-0081	Rv0081	12.28	15.22	2.94
NR-43300	H37Rv:pEXCF-0117	Rv0117	10.07	14.76	4.69
NR-43301	H37Rv:pEXCF-0135c	Rv0135c	12.41	14.70	2.30
NR-43302	H37Rv:pEXCF-0144	Rv0144	13.87	14.70	0.83

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NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43303	H37Rv:pEXCF-0158	Rv0158	11.42	14.40	2.98
NR-43304	H37Rv:pEXCF-0165c	Rv0165c	11.82	15.53	3.72
NR-43305	H37Rv:pEXCF-0182c	Rv0182c	12.14	14.51	2.37
NR-43306	H37Rv:pEXCF-0195	Rv0195	7.55	13.61	6.05
NR-43307	H37Rv:pEXCF-0212c	Rv0212c	10.27	14.79	4.52
NR-43308	H37Rv:pEXCF-0232	Rv0232	12.81	15.03	2.22
NR-43309	H37Rv:pEXCF-0238	Rv0238	12.49	14.33	1.84
NR-43310	H37Rv:pEXCF-0260c	Rv0260c	7.31	13.37	6.07
NR-43311	H37Rv:pEXCF-0273c	Rv0273c	11.06	14.31	3.26
NR-43312	H37Rv:pEXCF-0275c	Rv0275c	11.93	14.27	2.33
NR-43313	H37Rv:pEXCF-0302	Rv0302	12.65	14.42	1.78
NR-43314	H37Rv:pEXCF-0324	Rv0324	9.98	14.68	4.70
NR-43315	H37Rv:pEXCF-0328	Rv0328	11.39	14.59	3.19
NR-43316	H37Rv:pEXCF-0330c	Rv0330c	9.08	14.49	5.41
NR-43317	H37Rv:pEXCF-0339c	Rv0339c	10.30	14.07	3.77
NR-43318	H37Rv:pEXCF-0348	Rv0348	9.83	13.68	3.85
NR-43319	H37Rv:pEXCF-0353	Rv0353	13.79	14.80	1.01
NR-43320	H37Rv:pEXCF-0377	Rv0377	10.02	14.11	4.10
NR-43321	H37Rv:pEXCF-0445c	Rv0445c	13.01	14.87	1.86
NR-43322	H37Rv:pEXCF-0452	Rv0452	11.18	14.96	3.78
NR-43323	H37Rv:pEXCF-0465c	Rv0465c	10.55	14.19	3.63
NR-43324	H37Rv:pEXCF-0472c	Rv0472c	13.10	14.93	1.82
NR-43325	H37Rv:pEXCF-0474	Rv0474	12.74	14.91	2.16
NR-43326	H37Rv:pEXCF-0485	Rv0485	13.52	14.55	1.04
NR-43327	H37Rv:pEXCF-0491	Rv0491	13.58	14.47	0.88
NR-43328	H37Rv:pEXCF-0494	Rv0494	8.60	14.28	5.68
NR-43329	H37Rv:pEXCF-0576	Rv0576	12.03	14.98	2.95
NR-43330	H37Rv:pEXCF-0586	Rv0586	12.67	14.67	2.00
NR-43331	H37Rv:pEXCF-0599c	Rv0599c	13.25	14.85	1.59
NR-43332	H37Rv:pEXCF-0602c	Rv0602c	7.77	14.75	6.99
NR-43333	H37Rv:pEXCF-0608	Rv0608	13.63	14.97	1.35
NR-43334	H37Rv:pEXCF-0623	Rv0623	12.69	15.08	2.39
NR-43335	H37Rv:pEXCF-0653c	Rv0653c	9.61	14.01	4.40
NR-43336	H37Rv:pEXCF-0674	Rv0674	11.20	14.70	3.50
NR-43337	H37Rv:pEXCF-0678	Rv0678	10.55	14.67	4.13
NR-43338	H37Rv:pEXCF-0681	Rv0681	13.29	14.43	1.13
NR-43339	H37Rv:pEXCF-0691c	Rv0691c	8.33	14.75	6.42
NR-43340	H37Rv:pEXCF-0735	Rv0735	10.13	14.94	4.81
NR-43341	H37Rv:pEXCF-0737	Rv0737	9.87	14.74	4.87

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NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43342	H37Rv:pEXCF-0744c	Rv0744c	11.82	15.07	3.25
NR-43344	H37Rv:pEXCF-0757	Rv0757	13.30	14.68	1.38
NR-43345	H37Rv:pEXCF-0767c	Rv0767c	8.76	14.54	5.78
NR-43346	H37Rv:pEXCF-0792c	Rv0792c	10.51	14.52	4.01
NR-43347	H37Rv:pEXCF-0818	Rv0818	13.42	14.75	1.33
NR-43348	H37Rv:pEXCF-0821c	Rv0821c	13.70	14.77	1.07
NR-43349	H37Rv:pEXCF-0823c	Rv0823c	13.99	14.85	0.86
NR-43350	H37Rv:pEXCF-0827c	Rv0827c	9.56	14.86	5.30
NR-43351	H37Rv:pEXCF-0844c	Rv0844c	12.83	14.60	1.77
NR-43352	H37Rv:pEXCF-0880	Rv0880	12.15	14.82	2.67
NR-43353	H37Rv:pEXCF-0891c	Rv0891c	12.05	14.61	2.56
NR-43354	H37Rv:pEXCF-0894	Rv0894	8.23	14.71	6.48
NR-43355	H37Rv:pEXCF-0903c	Rv0903c	13.27	14.28	1.01
NR-43356	H37Rv:pEXCF-0967	Rv0967	12.22	14.99	2.78
NR-43357	H37Rv:pEXCF-0981	Rv0981	12.79	14.55	1.76
NR-43358	H37Rv:pEXCF-1019	Rv1019	12.41	14.63	2.22
NR-43359	H37Rv:pEXCF-1027c	Rv1027c	9.62	14.44	4.82
NR-43360	H37Rv:pEXCF-1033c	Rv1033c	10.49	14.54	4.05
NR-43361	H37Rv:pEXCF-1049	Rv1049	10.83	15.43	4.59
NR-43362	H37Rv:pEXCF-1129c	Rv1129c	8.72	14.25	5.53
NR-43363	H37Rv:pEXCF-1151c	Rv1151c	11.17	14.43	3.25
NR-43364	H37Rv:pEXCF-1152	Rv1152	11.93	14.86	2.93
NR-43365	H37Rv:pEXCF-1167c	Rv1167c	12.52	15.07	2.55
NR-43366	H37Rv:pEXCF-1176c	Rv1176c	10.68	14.52	3.84
NR-43367	H37Rv:pEXCF-1186c	Rv1186c	10.86	14.58	3.72
NR-43368	H37Rv:pEXCF-1189	Rv1189	8.41	14.12	5.71
NR-43369	H37Rv:pEXCF-1219c	Rv1219c	10.02	15.09	5.07
NR-43370	H37Rv:pEXCF-1221	Rv1221	13.79	14.78	0.99
NR-43371	H37Rv:pEXCF-1255c	Rv1255c	9.81	14.49	4.68
NR-43372	H37Rv:pEXCF-1267c	Rv1267c	9.07	14.82	5.75
NR-43373	H37Rv:pEXCF-1287	Rv1287	11.94	15.03	3.09
NR-43374	H37Rv:pEXCF-1332	Rv1332	13.36	14.68	1.32
NR-43375	H37Rv:pEXCF-1353c	Rv1353c	8.53	13.11	4.59
NR-43376	H37Rv:pEXCF-1358	Rv1358	7.47	13.17	5.71
NR-43377	H37Rv:pEXCF-1359	Rv1359	8.73	14.81	6.09
NR-43378	H37Rv:pEXCF-1379	Rv1379	12.87	15.06	2.19
NR-43379	H37Rv:pEXCF-1395	Rv1395	8.96	14.55	5.59
NR-43380	H37Rv:pEXCF-1404	Rv1404	13.35	14.77	1.41
NR-43381	H37Rv:pEXCF-1423	Rv1423	13.08	14.45	1.37

NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43382	H37Rv:pEXCF-1453	Rv1453	8.84	14.04	5.19
NR-43383	H37Rv:pEXCF-1460	Rv1460	11.78	14.76	2.98
NR-43384	H37Rv:pEXCF-1473A	Rv1473A	11.29	14.19	2.89
NR-43385	H37Rv:pEXCF-1474c	Rv1474c	12.63	14.77	2.14
NR-43386	H37Rv:pEXCF-1556	Rv1556	11.01	14.05	3.04
NR-43387	H37Rv:pEXCF-1560	Rv1560	12.55	14.62	2.07
NR-43388	H37Rv:pEXCF-1626	Rv1626	14.23	14.27	0.04
NR-43389	H37Rv:pEXCF-1657	Rv1657	10.38	14.26	3.87
NR-43390	H37Rv:pEXCF-1674c	Rv1674c	7.62	13.35	5.73
NR-43391	H37Rv:pEXCF-1675c	Rv1675c	7.86	13.63	5.77
NR-43392	H37Rv:pEXCF-1719	Rv1719	10.43	14.42	3.99
NR-43393	H37Rv:pEXCF-1725c	Rv1725c	9.02	14.55	5.53
NR-43394	H37Rv:pEXCF-1740	Rv1740	11.42	14.79	3.37
NR-43395	H37Rv:pEXCF-1773c	Rv1773c	9.15	14.32	5.18
NR-43396	H37Rv:pEXCF-1776c	Rv1776c	8.57	13.77	5.19
NR-43397	H37Rv:pEXCF-1816	Rv1816	13.08	14.92	1.84
NR-43398	H37Rv:pEXCF-1828	Rv1828	13.92	14.48	0.56
NR-43399	H37Rv:pEXCF-1830	Rv1830	14.02	14.15	0.13
NR-43400	H37Rv:pEXCF-1846c	Rv1846c	14.12	14.33	0.21
NR-43401	H37Rv:pEXCF-1909c	Rv1909c	11.70	15.03	3.32
NR-43402	H37Rv:pEXCF-1931c	Rv1931c	8.23	13.28	5.05
NR-43403	H37Rv:pEXCF-1956	Rv1956	12.09	14.72	2.63
NR-43404	H37Rv:pEXCF-1960c	Rv1960c	11.57	14.52	2.95
NR-43405	H37Rv:pEXCF-1963c	Rv1963c	10.33	14.54	4.22
NR-43406	H37Rv:pEXCF-1985c	Rv1985c	9.56	14.64	5.07
NR-43407	H37Rv:pEXCF-1990c	Rv1990c	11.28	14.18	2.90
NR-43408	H37Rv:pEXCF-1994c	Rv1994c	12.02	14.45	2.43
NR-43409	H37Rv:pEXCF-2009	Rv2009	13.97	14.50	0.53
NR-43410	H37Rv:pEXCF-2011c	Rv2011c	9.12	13.84	4.72
NR-43411	H37Rv:pEXCF-2017	Rv2017	10.89	14.00	3.10
NR-43412	H37Rv:pEXCF-2021c	Rv2021c	12.21	14.56	2.35
NR-43413	H37Rv:pEXCF-2034	Rv2034	10.76	14.63	3.86
NR-43414	H37Rv:pEXCF-2069	Rv2069	13.32	14.65	1.33
NR-43415	H37Rv:pEXCF-2160A	Rv2160A	13.35	14.96	1.61
NR-43416	H37Rv:pEXCF-2160c	Rv2160c	12.98	14.77	1.79
NR-43417	H37Rv:pEXCF-2175c	Rv2175c	11.50	14.80	3.30
NR-43418	H37Rv:pEXCF-2242	Rv2242	11.54	14.49	2.95
NR-43419	H37Rv:pEXCF-2250c	Rv2250c	8.56	14.22	5.65
NR-43420	H37Rv:pEXCF-2258c	Rv2258c	13.46	14.54	1.09

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NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43421	H37Rv:pEXCF-2282c	Rv2282c	8.83	13.97	5.15
NR-43422	H37Rv:pEXCF-2324	Rv2324	9.82	14.58	4.76
NR-43423	H37Rv:pEXCF-2359	Rv2359	12.01	14.93	2.92
NR-43424	H37Rv:pEXCF-2374c	Rv2374c	13.08	15.11	2.04
NR-43425	H37Rv:pEXCF-2478c	Rv2478c	10.95	14.26	3.31
NR-43426	H37Rv:pEXCF-2488c	Rv2488c	8.79	13.61	4.82
NR-43427	H37Rv:pEXCF-2506	Rv2506	10.44	14.25	3.82
NR-43428	H37Rv:pEXCF-2595	Rv2595	13.03	14.72	1.69
NR-43429	H37Rv:pEXCF-2621c	Rv2621c	11.35	14.56	3.20
NR-43430	H37Rv:pEXCF-2640c	Rv2640c	12.09	12.82	0.73
NR-43431	H37Rv:pEXCF-2642	Rv2642	10.90	14.81	3.90
NR-43432	H37Rv:pEXCF-2703	Rv2703	14.20	15.14	0.94
NR-43433	H37Rv:pEXCF-2710	Rv2710	14.12	14.80	0.68
NR-43434	H37Rv:pEXCF-2711	Rv2711	13.77	14.96	1.20
NR-43435	H37Rv:pEXCF-2720	Rv2720	13.53	14.69	1.16
NR-43436	H37Rv:pEXCF-2745c	Rv2745c	14.36	15.25	0.90
NR-43437	H37Rv:pEXCF-2760c	Rv2760c	10.48	14.88	4.41
NR-43438	H37Rv:pEXCF-2779c	Rv2779c	10.94	14.69	3.74
NR-43439	H37Rv:pEXCF-2788	Rv2788	11.85	14.44	2.59
NR-43440	H37Rv:pEXCF-2827c	Rv2827c	11.06	14.74	3.68
NR-43441	H37Rv:pEXCF-2884	Rv2884	10.47	14.54	4.07
NR-43442	H37Rv:pEXCF-2887	Rv2887	11.88	14.69	2.81
NR-43443	H37Rv:pEXCF-2912c	Rv2912c	10.84	14.14	3.30
NR-43444	H37Rv:pEXCF-2986c	Rv2986c	14.58	15.15	0.57
NR-43445	H37Rv:pEXCF-2989	Rv2989	13.18	14.96	1.78
NR-43446	H37Rv:pEXCF-3050c	Rv3050c	13.91	14.87	0.95
NR-43447	H37Rv:pEXCF-3055	Rv3055	10.63	14.55	3.92
NR-43448	H37Rv:pEXCF-3058c	Rv3058c	13.29	14.93	1.64
NR-43449	H37Rv:pEXCF-3060c	Rv3060c	11.43	14.28	2.85
NR-43450	H37Rv:pEXCF-3066	Rv3066	9.54	14.55	5.01
NR-43451	H37Rv:pEXCF-3082c	Rv3082c	8.12	13.83	5.71
NR-43452	H37Rv:pEXCF-3095	Rv3095	12.60	14.92	2.32
NR-43453	H37Rv:pEXCF-3124	Rv3124	8.30	14.58	6.28
NR-43454	H37Rv:pEXNF-3133c	Rv3133c	12.20	14.68	2.48
NR-43455	H37Rv:pEXCF-3143	Rv3143	11.32	14.66	3.34
NR-43456	H37Rv:pEXCF-3160c	Rv3160c	11.99	14.93	2.94
NR-43457	H37Rv:pEXCF-3167c	Rv3167c	8.07	14.91	6.84
NR-43458	H37Rv:pEXCF-3173c	Rv3173c	12.88	14.67	1.79
NR-43459	H37Rv:pEXCF-3183	Rv3183	8.41	14.84	6.43

Product Information Sheet for NR-43475

NR Number	Strain Description	Rv Number	Basal level of Transcription Factor Expression ^{2,3}	Induced Level of Transcription Factor Expression ²⁻⁴	Fold Change ^{5,6}
NR-43460	H37Rv:pEXCF-3197A	Rv3197A	11.77	14.68	2.91
NR-43461	H37Rv:pEXCF-3208	Rv3208	12.74	15.07	2.33
NR-43462	H37Rv:pEXCF-3219	Rv3219	14.51	14.98	0.46
NR-43463	H37Rv:pEXCF-3223c	Rv3223c	13.46	14.88	1.41
NR-43464	H37Rv:pEXCF-3246c	Rv3246c	14.26	14.78	0.52
NR-43465	H37Rv:pEXCF-3249c	Rv3249c	13.04	14.66	1.63
NR-43466	H37Rv:pEXCF-3260c	Rv3260c	14.46	15.20	0.74
NR-43467	H37Rv:pEXCF-3286c	Rv3286c	10.53	14.43	3.90
NR-43468	H37Rv:pEXCF-3291c	Rv3291c	10.83	15.02	4.18
NR-43469	H37Rv:pEXCF-3295	Rv3295	13.28	14.69	1.41
NR-43470	H37Rv:pEXCF-3301c	Rv3301c	13.14	14.43	1.29
NR-43471	H37Rv:pEXCF-3328c	Rv3328c	11.80	14.69	2.88
NR-43472	H37Rv:pEXCF-3334	Rv3334	11.43	14.96	3.53
NR-43473	H37Rv:pEXCF-3405c	Rv3405c	10.23	14.84	4.61
NR-43474	H37Rv:pEXCF-3414c	Rv3414c	13.61	14.92	1.31
NR-43475	H37Rv:pEXCF-3416	Rv3416	12.77	15.09	2.32
NR-43476	H37Rv:pEXCF-3417c	Rv3417c	13.66	14.86	1.20
NR-43477	H37Rv:pEXCF-3488	Rv3488	10.08	14.30	4.22
NR-43478	H37Rv:pEXCF-3557c	Rv3557c	11.71	14.82	3.10
NR-43479	H37Rv:pEXCF-3574	Rv3574	11.31	14.67	3.36
NR-43480	H37Rv:pEXCF-3583c	Rv3583c	14.60	15.10	0.50
NR-43481	H37Rv:pEXCF-3597c	Rv3597c	13.88	14.83	0.95
NR-43482	H37Rv:pEXCF-3676	Rv3676	13.62	15.03	1.41
NR-43484	H37Rv:pEXCF-3681c	Rv3681c	12.62	12.81	0.19
NR-43485	H37Rv:pEXCF-3736	Rv3736	10.65	14.56	3.92
NR-43486	H37Rv:pEXCF-3744	Rv3744	12.13	14.21	2.08
NR-43487	H37Rv:pEXCF-3765c	Rv3765c	11.90	14.66	2.76
NR-43488	H37Rv:pEXCF-3830c	Rv3830c	9.08	13.71	4.63
NR-43489	H37Rv:pEXCF-3833	Rv3833	9.42	13.88	4.46
NR-43490	H37Rv:pEXCF-3840	Rv3840	8.49	14.80	6.31
NR-43491	H37Rv:pEXCF-3849	Rv3849	13.68	14.60	0.92
NR-43492	H37Rv:pEXCF-3852	Rv3852	13.99	14.50	0.52
NR-43493	H37Rv:pEXCF-3855	Rv3855	11.25	14.53	3.28
NR-43494	H37Rv:pEXCF-3862c	Rv3862c	8.94	14.34	5.40
NR-43495	H37Rv:pEXCF-3911	Rv3911	11.32	14.39	3.07

¹All information in this table was provided by the depositor at the time of deposition.

²Expression values are the average from three or more microarrays in arbitrary units, log base two.

³Level of expression: ■ – high expression ($\log_2 = 14$); □ - medium expression ($\log_2 = 10.5$); ■ – low expression ($\log_2 = 7$).

⁴Induction occurred over 18 hours in the presence of 100 ng/mL ATc

⁵Fold change is log base 2 (i.e. a fold change of 1 is two fold more expression in induced conditions, 2 is four fold, etc.)

⁶Fold change in expression: ■ – 4 fold change ($\log_2 = 2$); □ – no change ($\log_2 = 0$); ■ – 0.25 fold change ($\log_2 = -2$).

Table 2: Primers and Conditions for Sequencing pEX Plasmids

<u>Primer Name</u>	<u>Target</u>	<u>Tm (°C)</u>	<u>F/R</u>	<u>Primer Sequence</u>
AMS70	pDEST/EX vectors	62	Forward	5' – catcatttcgacgccgagag -3'
AMS71	pDEST/EX vectors	63.8	Reverse	5' – cgataacgttctcggtcgtatg -3'

Figure 1: Plasmid Map of pEXCF

