

***Mycobacterium tuberculosis* subsp. *tuberculosis*, Strain H37Rv:pEXCF-0891c, Transcription Factor Overexpression Mutant**

Catalog No. NR-43353

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Manufacturing Date: 30MAY2010

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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-0891c

Gene: Rv0891c¹

Original Source: *Mycobacterium tuberculosis* (*M. tuberculosis*) subsp. *tuberculosis*, strain H37Rv was transformed with a C-terminally epitope-tagged expression vector containing Rv0891c, a possible transcriptional regulatory protein.²

Comment: Fidelity of H37Rv:pEXCF-0891c 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 2.56 fold over-expression of Rv0891c (see Table 1 for complete microarray data).

pEXCF-0891c 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). Rv0891c 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-43353 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-0891c, Transcription Factor Overexpression Mutant, NR-43353."

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.

Disclaimers:

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References:

1. TubercuList: [Rv0891c](#)
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 |

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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-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 |

| 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' – cgataacgttctcggtctgatg -3' |

Figure 1: Plasmid Map of pEXCF

