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Abstract:

Lineage specific expansion (LSE) of protein families is a widespread property of many eukaryotic genomes, but is generally more limited in bacterial genomes. Here, we have discovered the presence of 434 genes encoding solute-binding proteins (SBPs) from the Tripartite Tricarboxylate Transporter (TTT) family, within the 8.2 Mb genome of the α-proteobacterium Rhodoplanes sp. Z2-YC6860, a gene family overrepresentation of unprecedented abundance in prokaryotes. Representing over 6% of the total number of coding sequences, the SBP genes are distributed across the whole genome, but found rarely in low-GC islands, where the gene density for this family is 10-fold lower. This observation, and the much higher sequence identity between the 434 Rhodoplanes TTT SBPs compared to the average identity between homologues from different species, suggests a key role for LSE in the expansion. The TTT SBP genes were found in the vicinity of genes encoding membrane components of transport systems from different families, as well as regulatory proteins such as histidine-kinases and transcription factors, suggesting a broad range of functions around the sensing, response and transport of organic compounds. A smaller expansion of TTT SBPs is known in some species of the β-proteobacteria Bordetella and we observed similar expansions in other β-proteobacterial lineages including Comamonas sp., and the industrial biotechnology organism Cupriavidus necator suggesting that strong environmental selection can drive SBP duplication and specialisation from multiple evolutionary starting points.
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Key words: Solute transporter; periplasmic-binding protein; Gene duplication; gene overrepresentation; lineage specific expansion.

Word count: 2203
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Lineage specific expansion (LSE) of protein families is a widespread property of many eukaryotic genomes, but is generally more limited in bacterial genomes. Here, we have discovered the presence of 434 genes encoding solute-binding proteins (SBPs) from the Tripartite Tricarboxylate Transporter (TTT) family, within the 8.2 Mb genome of the α-proteobacterium *Rhodoplanes* sp. Z2-YC6860, a gene family overrepresentation of unprecedented abundance in prokaryotes. Representing over 6% of the total number of coding sequences, the SBP genes are distributed across the whole genome, but found rarely in low-GC islands, where the gene density for this family is 10-fold lower. This observation, and the much higher sequence identity between the 434 *Rhodoplanes* TTT SBPs compared to the average identity between homologues from different species, suggests a key role for LSE in the expansion.

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Impact Statement

Intraspecific gene homology is a common evolutionary feature among prokaryotes, helping to build metabolic versatility and adaptability, but is mostly restricted in terms of gene numbers. Here, the overrepresentation of a gene family of unprecedented magnitude in a prokaryotic genome is described, with 434 genes belonging to the TTT SBP family in the α-proteobacterium *Rhodoplanes sp.* Z2-YC6860 genome. Although an overrepresentation of smaller scale has been characterised for this family in some β-proteobacteria, we provide evidence that LSE, rather than HGT, is likely the major driving mechanism for this expansion, suggesting that environmental selection can drive the expansion of binding proteins independently in multiple organisms.
Introduction

Gene family expansions result from events of gene duplication and horizontal gene transfer (HGT), and are major drivers for metabolic versatility and adaptation in prokaryotes and eukaryotes [1, 2]. High-throughput analyses of prokaryotic genomes suggest that the number of homologous genes correlates positively with genome size, possibly reflecting the versatility required from the complex environments bacteria with large genome sizes often inhabit [1, 3-5], and that species showing similar families of homologues usually show similar metabolic features [1]. However, although the sum of genes encoding proteins that form members of gene families is significant, the number of members of individual families is usually low, with only 2% of such families showing three or more copies [5, 6], and there are very few cases where an overrepresentation of a single gene family is observed in a prokaryotic genome that is not related to transposon and phage insertions [5].

One of the few exceptions is the observed overrepresentation of histidine kinases (HPKs), reaching over 100 gene copies and representing 2.5% of the coding sequences in some genomes [7, 8]. Although HGT seems to have played an important role in the expansion of this gene family, the largest overrepresentations are a consequence of gene duplication leading to lineage-specific expansions (LSE), which then results in the occurrence of “orphan” HPKs (i.e. not encoded next to their cognate response regulators), that subsequently diverge through rearrangements in their N-terminal signalling domain to sense different environmental conditions [7]. In genomes where the expansion is driven by HGT, the HPK and the response regulators are duplicated together, undergoing a rapid selective pressure to co-evolve and cease “cross-talk” with other systems [9].
A second example is the genome of the subsurface α-proteobacterium *Geobacter sulfurreducens*, which contains 111 genes encoding for proteins of the cytochrome *c* family, representing 3% of the total theoretical proteome [10]. This overrepresentation correlates with the versatile bioenergetics of this organism, which uses metal ion-mediated electron transport to oxidize its substrates [10], although the actual function of the vast majority of these cytochromes is unknown.

A third example is the genome of the gut symbiotic *Bacteroides thetaiotaomicron*, which revealed the existence of 106 homologous genes to *susC* and 57 homologous genes to *susD*, encoding components of outer membrane uptake systems. In addition, 71 genes encoding glycosyltransferases are present, being involved in capsular polysaccharide biosynthesis. The overrepresentation of these two families is believed to relate both to the versatile uptake and utilisation of otherwise non-digestible sugars and evasion of the human immune system [8].

A final example of a large gene overrepresentation in bacterial genomes, relates to solute-binding proteins (SBPs) of the Tripartite tricarboxylate Transporters (TTT) family [11]. The TTT family are secondary transporters that use a periplasmic SBP for initial substrate recognition and binding. The TctCBA citrate uptake system from *Salmonella typhimurium* is the prototypical transporter of this family [12]. Each complete system is composed of three subunits: a 12-helix transmembrane protein, homologous to TctA and thought to be the solute carrier itself, a poorly-conserved 4 TM domain accessory protein, homologous to TctB and of unknown function, and a periplasmic SBP, homologous to TctC and responsible for substrate specificity and initial high-affinity binding.
Genomic studies in the whooping-cough causing agent *Bordetella pertussis* revealed the existence of 79 genes encoding TTT SBPs [13], and further analysis showed this overrepresentation was found in many *Bordetella* species, reaching 181 genes in *Bordetella bronchiseptica*, and in a closely related bacterium, *Cupriavidus metallidurans* [14]. Intriguingly, the number of genes for the membrane components did not follow the same pattern, showing no more than 4 representatives in *Bordetella*, leaving the majority of the SBPs as “orphans”. Later genome releases showed this overrepresentation was found also in other β-proteobacteria of the genus *Advenella* [15]. In this study, we further analyse the distribution of TTT SBPs in bacteria and discover a group of α-proteobacteria that have independently expanded their use of these proteins to unprecedented levels for any gene family in any currently known bacterial genome.

### Results and Discussion

While studying the function and diversity of TTT transporters [11, 16], we analysed the number of TTT SBP homologues encoded amongst 2323 different bacterial genomes. These data were mapped onto a 16S rRNA tree to determine how the frequency of the SBPs was associated with the phylogenetic position of the organisms (Fig. 1). The known expansions of the TTT SBPs in the *Bordetellae* [14] can be clearly identified in the tree, as well as other expansions within the β-proteobacteria. However, examples of genomes enriched in TTT SBPs can also be seen in the α-proteobacteria, and most strikingly in the genome of *Rhodoplanes sp. Z2-YC6860* (Assembly: GCA_001579845.1), where 434 TctC homologs were found encoded in its 8.2 Mbp genome, representing 6.2% of the total coding sequences...
(CDS) (Fig 1). Other closely related α-proteobacteria show similar but smaller enrichments, including *Pseudorhodoplanes sinuspersici* RIPI110, with 99 TTT SBPs, and *Bradyrhizobium icense* LMTR13, with 43 TTT SBPs.

We examined the genome of *Rhodoplanes sp. Z2-YC6860* in more detail to check the quality of the assembly and to investigate where the genes for the 434 TTT SBPs were located (Fig 2). To check the assembly we plotted the GC skew (innermost ring in Fig. 2) and observed the typical skew reversal from the likely origin of replication until the likely termination site [17]. We also plotted the GC content (next innermost ring in Fig.2) and could identify likely regions of DNA with atypically low GC, which were also predicted to be genomic islands using IslandViewer4 [18]. Interestingly, although the TTT SBP genes are distributed across the whole genome, the number of such genes in these low GC regions, which comprise 24% of genome length and with a GC content of 57.8%, is only 13, which gives a ‘density’ of TTT SBP genes in these regions of 6.6 genes/Mb. The rest of the genome, in contrast, has a GC content of 63.5%, and contains 421 TTT SBP genes, so has a ‘density’ 67.6 TTT SBP genes/Mb. This striking 10-fold difference in density suggests that recent detectable HGT is not the primary route by which these genes have been acquired as these regions in effect dilute the density of the TTT SBPs found in the rest of the genome.

Examination of the arrangement of the TTT SBPs on the genome reveals that there are 48 sets of these genes arranged in tandem arrays, while others are present in longer arrays of 3,4 and 5 genes (Table 1). Remarkably, there is a single array
containing 9 TTT SBPs adjacent to each other. The closely related
Pseudorhodoplanes sinuspersici RIPI110 and Bradyrhizobium icense LMTR13 also
show evidence of tandem arrays, but not of this complexity. However, we cannot
exclude the presence of similar organisations in closely related bacteria where
genomic information is not available.

Given these arrays of genes might have arisen by LSE, and not by transference of
whole arrays through HGT, we then assessed the level of sequence identity between
the 434 TTT SBPs of Rhodoplanes sp. Z2-YC6860 by comparing all against each
other using pairwise BLAST analysis (Table S1). The highest identity for any given
pair of proteins was 79.7% with 145 sequences having over 50% identify to another
TTT SBP in Rhodoplanes sp. Z2-YC6860, of which 25 were above 60% identity.

Given that the average identity between TTT SBPs homologs from different species
range from 25% to 40% [11], these data reinforce LSE as the major mechanism
driving this overrepresentation, although a comprehensive phylogenetic analysis of
the TTT SBP protein sequences across the Proteobacteria would be necessary to
show the exact extent of the contribution of LSE. Within the unusual 9 gene array,
we examined the relationships between the proteins encoded by genes in the cluster
compared to the remaining TTT SBP homologues encoded in the genome (Fig. 3).

Interestingly, with a single exception, the proteins are not more than 50% identical to
each other and 5 of the 9 proteins have the greatest similarity to proteins outside the
cluster with RHPLAN_29570 being the closest match for 4 of them. Even this limited
analysis suggests a complex pattern of gene gain and movement of genes around
the chromosome.
Finally we considered what the functions of this expansion might be and noted that it appears to have occurred multiple times in different bacteria. From the genome context of the TTT SBPs we could see that many were genetically linked to known transporters. However, only 9 form part of standard operons for a full TTT transporter, along with genes encoding TctA and TctB-like membrane proteins. Perhaps more surprisingly, some are linked to genes encoding subunits of other SBP-dependent transporters, with 8 linked to Tripartite ATP-Independent Periplasmic (TRAP) transporters and 41 to ATP-Binding Cassette (ABC) transporters. One of the proposed explanations for the overrepresentation of TTT SBPs in *Bordetella* was that these SBPs would interact with different transport systems, and that one membrane component would be capable of interacting with different SBPs under diverse circumstances, which could also be the case in *Rhodoplanes* sp. [14, 19]. Another possibility would be that these orphan proteins are required for processes other than transport, where the binding protein function is related to chemical sensing and signalling rather than transport directly, in systems such as two-component systems and the chemosensory apparatus that regulates chemotaxis. For example, this sensory role has been demonstrated for the BctDECBA system of *Bordetella pertussis* [20, 21]. Our searches in *Rhodoplanes* revealed that 14 out of the 22 identified histidine kinase genes, as well as 5 genes encoding proteins related to flagella motility had genes encoding TTT SBPs nearby. In addition, 70 *tctC* genes (16%) had a transcription factor encoded in their immediate vicinity. The abundance of transcription factor genes around TTT SBP genes has been previously observed in the genome of *Ralstonia eutropha*, where 64.1% of the 154 homologs exhibited this characteristic [22]. From the 434 TctC sequences in *Rhodoplanes* sp, 355 (82%) were predicted to have a signal for
periplasmic export, identified by SignalP software [23], showing that regardless of
their function, they are mostly located in the periplasm.

The proteobacterial groups we have observed to show a TTT SBP expansion all
inhabit complex soil and water environments, with the exception of some Bordetella
species, known for their pathogenicity, but it has been speculated whether in the
latter case this overrepresentation was inherited from a free-living ancestor and that
these genes are gradually being lost [14]. The Rhodoplanes genus was first
proposed by Hiraishi and Ueda [24] to comprise pink-coloured non-sulphur purple
bacteria, closely related to the Rhodopseudomonas genus, but forming an exclusive
cluster in 16S rRNA phylogenetic analyses. Inhabiting a wide range of complex soil
and water environments, they are known to have a diverse and versatile metabolism
[25-28]. We speculate that this vast array of TTT SBPs could enhance this versatility
by providing an evolutionary advantage in terms of sensing, response and uptake in
a complex environment in a more tailored fashion. The polyphyletic origins of TTT
expansion supports the hypothesis that LSE played a major role in the mechanism of
the expansion, potentially following ancient small events of HGT, suggesting that
environmental pressure can independently drive SBP duplication and adaptation
from multiple starting points given the right environmental conditions.

Conclusion
The present study describes a vast overrepresentation of TTT SBPs in the genome
of the soil bacterium Rhodoplanes sp. Z2-YC6860, with 434 representatives.
Although we cannot totally exclude that this gene family overrepresentation was partially driven by HGT, our findings indicate a major role of LSE in the origin of such an astonishing number of homologous genes, which may be linked to an enhanced metabolic versatility in this organism. Furthermore, we speculate that environmental pressure can drive SBP proliferation from multiple starting points. To the best of our knowledge, this is the most abundant gene family so far described in a prokaryotic genome.
Conflicts of interest

The research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Non-standard abbreviations:

TTT, Tripartite Tricarboxylate Transporters; SBP, Soluble Binding Proteins; HGT, Horizontal Gene Transfer; LSE, Lineage-Specific Expansion; HPK, Histidine Kinase; CDS, Coding DNA Sequence.
1. Bratlie MS, Johansen J, Sherman BT, Huang da W, Lempicki RA et al. Gene duplications in prokaryotes can be associated with environmental adaptation. BMC genomics 2010;11:588.
2. Turkarslan S, Reiss DJ, Gibbins G, Su WL, Pan M et al. Niche adaptation by expansion and reprogramming of general transcription factors. Molecular systems biology 2011;7:554.
3. Treangen TJ, Rocha EPC. Horizontal Transfer, Not Duplication, Drives the Expansion of Protein Families in Prokaryotes. PLOS Genetics 2011;7(1):e1001284.
4. Cordero OX, Hogeweg P. The impact of long-distance horizontal gene transfer on prokaryotic genome size. Proceedings of the National Academy of Sciences 2009;106(51):21748-21753.
5. Larsson J, Nylander JA, Bergman B. Genome fluctuations in cyanobacteria reflect evolutionary, developmental and adaptive traits. BMC evolutionary biology 2011;11:187.
6. Lerat E, Daubin V, Ochman H, Moran NA. Evolutionary Origins of Genomic Repertoires in Bacteria. PLOS Biology 2005;3(5):e130.
7. Alm E, Huang K, Arkin A. The Evolution of Two-Component Systems in Bacteria Reveals Different Strategies for Niche Adaptation. PLOS Computational Biology 2006;2(11):e143.
8. Xu J, Bjursell MK, Himrod J, Deng S, Carmichael LK et al. A genomic view of the human-Bacteroides thetaiotaomicron symbiosis. Science (New York, NY) 2003;299(5615):2074-2076.
9. Salazar ME, Laub MT. Temporal and evolutionary dynamics of two-component signaling pathways. Current opinion in microbiology 2015;24:7-14.
10. Methé BA, Nelson KE, Eisen JA, Paulsen IT, Nelson W et al. Genome of Geobacter sulfurreducens: Metal Reduction in Subsurface Environments. Science (New York, NY) 2003;302(5652):1967-1969.
11. Rosa LT, Bianconi ME, Thomas GH, Kelly DJ. Tripartite ATP-independent periplasmic (TRAP) transporters and tripartite tricarboxylate transporters (TTT): From uptake to pathogenicity. Frontiers in Cellular and Infection Microbiology 2018:In review.
12. Widenhorn KA, Somers JM, Kay WW. Expression of the divergent tricarboxylate transport operon (tctl) of Salmonella typhimurium. J Bacteriol 1988;170(7):3223-3227.
13. Antoine R, Raze D, Locht C. Genomics of Bordetella pertussis toxins. International journal of medical microbiology : IJMM 2000;290(4-5):301-305.
14. Antoine R, Jacob-Dubuisson F, Drobecq H, Willery E, Lesjean S et al. Overrepresentation of a gene family encoding extracytoplasmic solute receptors in Bordetella. J Bacteriol 2013;185(4):1470-1474.
15. Wubbeler JH, Hiessl S, Schuldes J, Thurmer A, Daniel R et al. Unravelling the complete genome sequence of Advenella mimigardefordensis strain DPN7T and novel insights in the catabolism of the xenobiotic polythioester precursor 3,3'-dithiodipropionate. Microbiology 2014;160(Pt 7):1401-1416.
16. Rosa LT, Dix SR, Rafferty JB, Kelly DJ. Structural basis for high-affinity adipate binding to AdpC (RPA4515), an orphan periplasmic-binding protein from the tripartite tricarboxylate transporter (TTT) family in Rhodopseudomonas palustris. The FEBS Journal 2017: 284:4262-4277.
17. McLean MJ, Wolfe KH, Devine KM. Base composition skews, replication orientation, and gene orientation in 12 prokaryote genomes. *Journal of Molecular Evolution* 1998;47(6):691-696.

18. Bertelli C, Laird MR, Williams KP, Lau BY, Hoad G et al. IslandViewer 4: expanded prediction of genomic islands for larger-scale datasets. *Nucleic acids research* 2017.

19. Hosaka M, Kamimura N, Toribami S, Mori K, Kasai D et al. Novel tripartite aromatic acid transporter essential for terephthalate uptake in *Comamonas* sp. strain E6. *Appl Environ Microbiol* 2013;79(19):6148-6155.

20. Antoine R, Huvent I, Chemlal K, Deray I, Raze D et al. The periplasmic binding protein of a tripartite tricarboxylate transporter is involved in signal transduction. *J Mol Biol* 2005;351(4):799-809.

21. Piepenbreier H, Fritz G, Gebhard S. Transporters as information processors in bacterial signalling pathways. *Molecular Microbiology* 2017;104(1):1-15.

22. Pohlmann A, Fricke WF, Reinecke F, Kusian B, Liesegang H et al. Genome sequence of the bioplastic-producing "Knallgas" bacterium *Ralstonia eutropha* H16. *Nature biotechnology* 2006;24(10):1257-1262.

23. Petersen TN, Brunak S, von Heijne G, Nielsen H. SignalP 4.0: discriminating signal peptides from transmembrane regions. *Nature Methods*, Correspondence 2011;8:785.

24. Hiraishi A, Ueda Y. *Rhodoplanes* gen. nov., a New Genus of Phototrophic Bacteria Including *Rhodopseudomonas rosea* as *Rhodoplanes roseus* comb. nov. and *Rhodoplanes elegans* sp. nov. *International Journal of Systematic and Evolutionary Microbiology* 1994;44(4):665-673.

25. Takaichi S, Sasikala C, Ramana Ch V, Okamura K, Hiraishi A. Carotenoids in *Rhodoplanes* species: variation of compositions and substrate specificity of predicted carotenogenesis enzymes. *Current microbiology* 2012;65(2):150-155.

26. Srinivas A, Sasikala C, Ramana Ch V. *Rhodoplanes oryzae* sp. nov., a phototrophic alphaproteobacterium isolated from the rhizosphere soil of paddy. *Int J Syst Evol Microbiol* 2014;64(Pt 7):2198-2203.

27. Lodha TD, Srinivas A, Sasikala C, Ramana CV. Hopanoid inventory of *Rhodoplanes* spp. *Archives of microbiology* 2015;197(6):861-867.

28. Hiraishi A. Characterization of thermotolerant phototrophic bacteria, *Rhodoplanes tepidicaeni* sp. nov. and *Rhodoplanes azumiensis* sp. nov., isolated from a geothermal spring. *Int J Syst Evol Microbiol* 2017.

29. Katoh K, Standley DM. MAFFT multiple sequence alignment software version 7: improvements in performance and usability. *Molecular biology and evolution* 2013;30(4):772-780.

30. Stamatakis A. RAxML version 8: a tool for phylogenetic analysis and post-analysis of large phylogenies. *Bioinformatics (Oxford, England)* 2014;30(9):1312-1313.
**Table 1.** Occurrence of TTT SBP genes as single genes or in larger arrays of genes, in the genome of *Rhodoplanes sp Z2-YC6860* and two closely related bacteria.

| Array Size (number of genes) | Frequency |
|------------------------------|-----------|
|                              | *Rhodoplanes sp Z2-YC6860* | *Pseudorhodoplanes sinuspersici RIPI110* | *Bradyrhizobium icense LMTR 13* |
| 1                            | 294       | 93         | 39         |
| 2                            | 48        | 3          | 2          |
| 3                            | 6         | -          | -          |
| 4                            | 3         | -          | -          |
| 5                            | 1         | -          | -          |
| 6                            | -         | -          | -          |
| 7                            | -         | -          | -          |
| 8                            | -         | -          | -          |
| 9                            | 1         | -          | -          |
Figure legends

**Figure 1. Distribution of TTT SBPs in the genomes of bacteria.** The outer circle represents the number of TTT SBPs present in each genome, using a log2 scale. The tree was inferred using 16S rRNA sequences retrieved from the genome of each organism, and aligned using MAFFT v7 [29]. A maximum likelihood tree was inferred using RAxML v8.2.11 [30] under the GTRCAT model, with 100 bootstrap pseudoreplicates. Bootstrap support values are indicated on nodes of major lineages when higher than 50% (closed circles) or lower than 50% (open circle). Major branches are coloured as indicated in the key. Non-coloured branches are minor lineages of Bacteria.

**Figure 2. Circular genome plot of the 8.163 Mb *Rhodoplanes sp. Z2-YC6860* genome.** The outer two tracks represent CDS on the forward strand (blue) and reverse strand (green), with black arrows indicating the location of TTT SBP genes. Orange blocks indicate genomic islands predicted by IslandViewer software [18]. The next inner circular plot represents % GC content calculated over a 10kb sliding window with a range of 52.4% to 63.4% and mean of 63.4%. The innermost circular plot represents GC skew calculated as (G-C)/(G+C) over a 10kb sliding window. The characteristic GC skew reversal at the origin and terminus of replication is indicated by dashed lines.

**Figure 3. Similarity matrix for amino acid sequences of 9 TTT family proteins located in the largest tandem array found in *Rhodoplanes sp. Z2-YC6860*.**
Pairwise comparisons between all TTT substrate binding proteins in *Rhodoplanes sp* Z2-YC6860 were made using blastp. The 9 proteins encoded by genes located in the largest tandem array found in the *Rhodoplanes* genome were used for the comparison shown. Of these 9 proteins 4 members shared highest amino acid identity with other members of the same array, while 5 members (indicated by asterisks) did not. With the exception of RHPLAN_16830, which shared highest identity with RHPLAN_10480 (53.1%), the remaining 4 shared highest identity with RHPLAN_29570 (identity values ranging from 48.1 to 52.0%).
Fig. 1
Fig. 2
### Supplementary Table 1: Pairwise comparison using BASTP of the 434 TctC homologs from *Rhodoplanes sp. Z2-Yi*

| Query Sequence | Top hit (match = self) | Top 10 non self hits |
|----------------|------------------------|----------------------|
| Locus_tag      | hit0 locus | eval | ident | hit1 locus | eval | % identity |
| RHPLAN_26680  | RHPLAN_26680 | 0 | 100 | RHPLAN_62490 | 0 | 79.70149254 |
| RHPLAN_62680  | RHPLAN_62680 | 0 | 100 | RHPLAN_64470 | 0 | 78.11550152 |
| RHPLAN_64470  | RHPLAN_64470 | 0 | 100 | RHPLAN_70110 | 0 | 74.15384615 |
| RHPLAN_70110  | RHPLAN_70110 | 0 | 100 | RHPLAN_70920 | 0 | 73.6196319 |
| RHPLAN_70920  | RHPLAN_70920 | 0 | 100 | RHPLAN_70930 | 0 | 73.6196319 |
| RHPLAN_70930  | RHPLAN_70930 | 0 | 100 | RHPLAN_26680 | 0 | 67.71635453 |
| RHPLAN_54810  | RHPLAN_54810 | 0 | 100 | RHPLAN_59580 | 2.00E-157 | 66.25766871 |
| RHPLAN_59580  | RHPLAN_59580 | 0 | 100 | RHPLAN_54810 | 2.00E-157 | 66.25766871 |
| RHPLAN_64470  | RHPLAN_64470 | 0 | 100 | RHPLAN_70110 | 0 | 74.15384615 |
| RHPLAN_70110  | RHPLAN_70110 | 0 | 100 | RHPLAN_70920 | 0 | 73.6196319 |
| RHPLAN_70920  | RHPLAN_70920 | 0 | 100 | RHPLAN_70930 | 0 | 73.6196319 |
| RHPLAN_70930  | RHPLAN_70930 | 0 | 100 | RHPLAN_26680 | 0 | 67.71635453 |
| RHPLAN_62490  | RHPLAN_62490 | 0 | 100 | RHPLAN_59580 | 2.00E-157 | 66.25766871 |
| RHPLAN_54810  | RHPLAN_54810 | 0 | 100 | RHPLAN_59580 | 2.00E-157 | 66.25766871 |
| RHPLAN_59580  | RHPLAN_59580 | 0 | 100 | RHPLAN_54810 | 2.00E-157 | 66.25766871 |
| RHPLAN_48400  | RHPLAN_48400 | 0 | 100 | RHPLAN_36560 | 1.00E-157 | 65.45454545 |
| RHPLAN_51420  | RHPLAN_51420 | 0 | 100 | RHPLAN_06190 | 8.00E-156 | 65.25679758 |
| RHPLAN_51420  | RHPLAN_51420 | 0 | 100 | RHPLAN_06190 | 2.00E-152 | 65.23076923 |
| RHPLAN_28550  | RHPLAN_28550 | 0 | 100 | RHPLAN_41890 | 1.00E-147 | 63.15789474 |
| RHPLAN_41890  | RHPLAN_41890 | 0 | 100 | RHPLAN_28550 | 1.00E-147 | 63.15789474 |
| RHPLAN_36560  | RHPLAN_36560 | 0 | 100 | RHPLAN_48400 | 1.00E-159 | 64.28571429 |
| RHPLAN_36500  | RHPLAN_36500 | 0 | 100 | RHPLAN_36510 | 3.00E-142 | 62.84829721 |
| RHPLAN_07700  | RHPLAN_07700 | 0 | 100 | RHPLAN_33880 | 2.00E-148 | 61.96319018 |
| RHPLAN_36510  | RHPLAN_36510 | 0 | 100 | RHPLAN_33880 | 2.00E-148 | 61.96319018 |
| RHPLAN_43730  | RHPLAN_43730 | 0 | 100 | RHPLAN_33880 | 2.00E-148 | 61.96319018 |
| RHPLAN_08370  | RHPLAN_08370 | 0 | 100 | RHPLAN_08360 | 8.00E-143 | 60.0619195 |
| RHPLAN_08360  | RHPLAN_08360 | 0 | 100 | RHPLAN_08370 | 8.00E-143 | 60.0619195 |
| RHPLAN_33880  | RHPLAN_33880 | 0 | 100 | RHPLAN_43730 | 2.00E-148 | 59.94065282 |
| RHPLAN_70860  | RHPLAN_70860 | 0 | 100 | RHPLAN_36500 | 8.00E-143 | 59.94065282 |
| RHPLAN_30210  | RHPLAN_30210 | 0 | 100 | RHPLAN_33880 | 2.00E-148 | 59.94065282 |
| RHPLAN_27530  | RHPLAN_27530 | 0 | 100 | RHPLAN_43730 | 2.00E-148 | 59.94065282 |
| RHPLAN_19290  | RHPLAN_19290 | 0 | 100 | RHPLAN_23740 | 7.00E-151 | 58.753012048 |
| RHPLAN_14020  | RHPLAN_14020 | 0 | 100 | RHPLAN_23740 | 7.00E-151 | 58.753012048 |
| RHPLAN_14030  | RHPLAN_14030 | 0 | 100 | RHPLAN_23740 | 7.00E-151 | 58.753012048 |
| RHPLAN_05710   | RHPLAN_05710   | 0     | 100   | RHPLAN_47590 | 6.00E-122 | 52.61538462 |
| RHPLAN_69840   | RHPLAN_69840   | 0     | 100   | RHPLAN_33880 | 5.00E-123 | 52.63598773 |
| RHPLAN_57910   | RHPLAN_57910   | 0     | 100   | RHPLAN_45780 | 2.00E-118 | 52.35109718 |
| RHPLAN_01790   | RHPLAN_01790   | 0     | 100   | RHPLAN_54230 | 5.00E-118 | 52.32198142 |
| RHPLAN_60850   | RHPLAN_60850   | 0     | 100   | RHPLAN_32270 | 8.00E-123 | 52.30769231 |
| RHPLAN_51130   | RHPLAN_51130   | 0     | 100   | RHPLAN_10720 | 1.00E-105 | 52.29357798 |
| RHPLAN_05720   | RHPLAN_05720   | 0     | 100   | RHPLAN_39290 | 5.00E-118 | 52.29357798 |
| RHPLAN_19340   | RHPLAN_19340   | 0     | 100   | RHPLAN_16830 | 3.00E-126 | 52.26586103 |
| RHPLAN_17970   | RHPLAN_17970   | 0     | 100   | RHPLAN_17990 | 1.00E-124 | 52.25252225 |
| RHPLAN_26020   | RHPLAN_26020   | 0     | 100   | RHPLAN_33390 | 7.00E-128 | 52.25252225 |
| RHPLAN_32270   | RHPLAN_32270   | 0     | 100   | RHPLAN_59450 | 6.00E-127 | 52.14723926 |
| RHPLAN_31510   | RHPLAN_31510   | 0     | 100   | RHPLAN_13810 | 2.00E-124 | 52.14723926 |
| RHPLAN_19340   | RHPLAN_19340   | 0     | 100   | RHPLAN_16830 | 3.00E-126 | 52.14723926 |
| RHPLAN_32270   | RHPLAN_32270   | 0     | 100   | RHPLAN_59450 | 6.00E-127 | 52.14723926 |
| RHPLAN_17970   | RHPLAN_17970   | 0     | 100   | RHPLAN_17990 | 1.00E-124 | 52.14723926 |
| RHPLAN_26020   | RHPLAN_26020   | 0     | 100   | RHPLAN_33390 | 7.00E-128 | 52.25252225 |
| RHPLAN_32270   | RHPLAN_32270   | 0     | 100   | RHPLAN_59450 | 6.00E-127 | 52.14723926 |
| RHPLAN_17970   | RHPLAN_17970   | 0     | 100   | RHPLAN_17990 | 1.00E-124 | 52.14723926 |
| RHPLAN_19090 | RHPLAN_19090 | 0  | 100 | RHPLAN_49400 | 5.00E-110 | 50.46439628 |
| RHPLAN_54070 | RHPLAN_54070 | 0  | 100 | RHPLAN_41870 | 7.00E-110 | 50.45592705 |
| RHPLAN_23690 | RHPLAN_23690 | 0  | 100 | RHPLAN_34220 | 7.00E-118 | 50.30674847 |
| RHPLAN_58540 | RHPLAN_58540 | 0  | 100 | RHPLAN_59450 | 1.00E-114 | 50.15384615 |
| RHPLAN_51230 | RHPLAN_51230 | 0  | 100 | RHPLAN_26230 | 3.00E-111 | 50.1510574 |
| RHPLAN_39920 | RHPLAN_39920 | 0  | 100 | RHPLAN_63280 | 2.00E-118 | 50.15015015 |
| RHPLAN_54070 | RHPLAN_54070 | 0  | 100 | RHPLAN_41870 | 8.00E-105 | 50            |
| RHPLAN_09560 | RHPLAN_09560 | 0  | 100 | RHPLAN_41140 | 2.00E-115 | 50            |
| RHPLAN_54250 | RHPLAN_54250 | 0  | 100 | RHPLAN_19360 | 5.00E-114 | 50            |
| RHPLAN_64850 | RHPLAN_64850 | 0  | 100 | RHPLAN_47590 | 2.00E-114 | 50            |
| RHPLAN_09560 | RHPLAN_09560 | 0  | 100 | RHPLAN_41140 | 1.00E-115 | 50.1510574 |
| RHPLAN_51450 | RHPLAN_51450 | 0  | 100 | RHPLAN_51440 | 8.00E-120 | 50            |
| RHPLAN_34250 | RHPLAN_34250 | 0  | 100 | RHPLAN_34220 | 3.00E-126 | 49.84984985 |
| RHPLAN_38680 | RHPLAN_38680 | 0  | 100 | RHPLAN_38680 | 1.00E-121 | 49.84802432 |
| RHPLAN_49470 | RHPLAN_49470 | 0  | 100 | RHPLAN_02340 | 1.00E-104 | 49.84615385 |
| RHPLAN_08460 | RHPLAN_08460 | 0  | 100 | RHPLAN_10480 | 1.00E-123 | 49.84715141 |
| RHPLAN_08460 | RHPLAN_08460 | 0  | 100 | RHPLAN_08460 | 9.00E-121 | 49.84954955 |
| RHPLAN_41140 | RHPLAN_41140 | 0  | 100 | RHPLAN_09560 | 5.00E-115 | 49.54407295 |
| RHPLAN_35610 | RHPLAN_35610 | 0  | 100 | RHPLAN_32270 | 3.00E-126 | 49.53846154 |
| RHPLAN_56300 | RHPLAN_56300 | 0  | 100 | RHPLAN_54250 | 6.00E-122 | 49.52978056 |
| RHPLAN_19360 | RHPLAN_19360 | 0  | 100 | RHPLAN_19360 | 3.00E-126 | 49.51501501 |
| RHPLAN_27740 | RHPLAN_27740 | 0  | 100 | RHPLAN_19300 | 2.00E-118 | 49.51501501 |
| RHPLAN_62120 | RHPLAN_62120 | 0  | 100 | RHPLAN_19300 | 9.00E-120 | 49.51501501 |
| RHPLAN_34240 | RHPLAN_34240 | 0  | 100 | RHPLAN_09560 | 1.00E-115 | 49.51501501 |
| RHPLAN_16840 | RHPLAN_16840 | 0 | 100 | RHPLAN_16830 | 1.00E-118 | 48.19277108 |
|---------------|---------------|---|-----|---------------|------------|-------------|
| RHPLAN_05740  | RHPLAN_05740  | 0 | 100 | RHPLAN_58720  | 5.00E-105  | 48.18181818 |
| RHPLAN_05730  | RHPLAN_05730  | 0 | 100 | RHPLAN_47590  | 9.00E-112  | 48.17073171 |
| RHPLAN_36040  | RHPLAN_36040  | 0 | 100 | RHPLAN_08380  | 9.00E-94   | 48.1595092  |
| RHPLAN_10060  | RHPLAN_10060  | 0 | 100 | RHPLAN_51130  | 4.00E-97   | 48.1595092  |
| RHPLAN_16810  | RHPLAN_16810  | 0 | 100 | RHPLAN_29570  | 8.00E-114  | 48.14814815 |
| RHPLAN_10980  | RHPLAN_10980  | 0 | 100 | RHPLAN_65030  | 5.00E-113  | 47.9876161  |
| RHPLAN_15110  | RHPLAN_15110  | 0 | 100 | RHPLAN_37150  | 8.00E-107  | 47.85276074 |
| RHPLAN_28330  | RHPLAN_28330  | 0 | 100 | RHPLAN_45780  | 2.00E-104  | 47.83950617 |
| RHPLAN_63280  | RHPLAN_63280  | 0 | 100 | RHPLAN_39920  | 1.00E-115  | 47.72036474 |
| RHPLAN_34260  | RHPLAN_34260  | 0 | 100 | RHPLAN_30090  | 6.00E-114  | 47.40061162 |
| RHPLAN_31580  | RHPLAN_31580  | 0 | 100 | RHPLAN_36510  | 5.00E-114  | 47.38899083 |
| RHPLAN_61720  | RHPLAN_61720  | 0 | 100 | RHPLAN_43730  | 2.00E-105  | 47.38899083 |
| RHPLAN_15440  | RHPLAN_15440  | 0 | 100 | RHPLAN_32270  | 1.00E-108  | 47.38362573 |
| RHPLAN_14170  | RHPLAN_14170  | 0 | 100 | RHPLAN_32270  | 1.00E-108  | 47.38362573 |
| RHPLAN_39000  | RHPLAN_39000  | 0 | 100 | RHPLAN_39000  | 5.00E-101  | 46.70846395 |
| RHPLAN_11590  | RHPLAN_11590  | 0 | 100 | RHPLAN_51130  | 1.00E-97   | 46.66666667 |
| RHPLAN_54090  | RHPLAN_54090  | 0 | 100 | RHPLAN_13310  | 1.00E-94   | 46.58385093 |
| RHPLAN_51440  | RHPLAN_51440  | 0 | 100 | RHPLAN_51450  | 2.00E-116  | 46.55647383 |
| RHPLAN_56600  | RHPLAN_56600  | 0 | 100 | RHPLAN_54070  | 2.00E-106  | 46.52567976 |
| RHPLAN_10090  | RHPLAN_10090  | 0 | 100 | RHPLAN_45780  | 8.00E-101  | 46.46153846 |
| RHPLAN_55850  | RHPLAN_55850  | 0 | 100 | RHPLAN_42150  | 5.00E-106  | 46.40718563 |
| RHPLAN_15450  | RHPLAN_15450  | 0 | 100 | RHPLAN_51130  | 1.00E-97   | 46.34146341 |
| RHPLAN_39000  | RHPLAN_39000  | 0 | 100 | RHPLAN_39010  | 5.00E-101  | 46.2962963 |
| RHPLAN_33260  | RHPLAN_33260  | 0 | 100 | RHPLAN_01790  | 6.00E-112  | 46.26038781 |
| RHPLAN_43540  | RHPLAN_43540  | 0 | 100 | RHPLAN_34220  | 4.00E-112  | 46.10778443 |
| RHPLAN_07810  | RHPLAN_07810  | 0 | 100 | RHPLAN_32270  | 3.00E-117  | 46.105919   |
| RHPLAN_31600  | RHPLAN_31600  | 0 | 100 | RHPLAN_24530  | 8.00E-114  | 45.90643275 |
| RHPLAN_31600  | RHPLAN_31600  | 0 | 100 | RHPLAN_24530  | 8.00E-114  | 45.90643275 |
| RHPLAN_24530  | RHPLAN_24530  | 0 | 100 | RHPLAN_36510  | 3.00E-114  | 45.87155963 |
| RHPLAN_08380  | RHPLAN_08380  | 0 | 100 | RHPLAN_54250  | 8.00E-110  | 45.82043344 |
| RHPLAN_32270  | RHPLAN_32270  | 0 | 100 | RHPLAN_34220  | 4.00E-112  | 45.78313253 |
| RHPLAN_13800  | RHPLAN_13800  | 0 | 100 | RHPLAN_32270  | 3.00E-117  | 45.78313253 |
| RHPLAN_68390  | RHPLAN_68390  | 0 | 100 | RHPLAN_06330  | 2.00E-104  | 45.65217391 |
| RHPLAN_68890  | RHPLAN_68890  | 0 | 100 | RHPLAN_08380  | 5.00E-93   | 45.59270517 |
| RHPLAN_48810  | RHPLAN_48810  | 0 | 100 | RHPLAN_10460  | 2.00E-100  | 45.56574924 |
| RHPLAN_35030  | RHPLAN_35030  | 0 | 100 | RHPLAN_02340  | 6.00E-98   | 45.51083591 |
| RHPLAN_48240  | RHPLAN_48240  | 0 | 100 | RHPLAN_48220  | 5.00E-115  | 45.42682927 |
| RHPLAN_55530  | RHPLAN_55530  | 0 | 100 | RHPLAN_51420  | 4.00E-111  | 45.37313433 |
| RHPLAN_58720 | RHPLAN_58720 | 0 | 100 | RHPLAN_39290 | 9.00E-113 | 45.34534535 |
| RHPLAN_60760 | RHPLAN_60760 | 0 | 100 | RHPLAN_60770 | 3.00E-99 | 45.34161491 |
| RHPLAN_46680 | RHPLAN_46680 | 0 | 100 | RHPLAN_24530 | 7.00E-105 | 45.2887538 |
| RHPLAN_30810 | RHPLAN_30810 | 0 | 100 | RHPLAN_24970 | 1.00E-115 | 45.17133956 |
| RHPLAN_68450 | RHPLAN_68450 | 0 | 100 | RHPLAN_14980 | 7.00E-89 | 45.1610574 |
| RHPLAN_67150 | RHPLAN_67150 | 0 | 100 | RHPLAN_21460 | 1.00E-90 | 45.14106583 |
| RHPLAN_65040 | RHPLAN_65040 | 0 | 100 | RHPLAN_24970 | 3.00E-109 | 45.12195122 |
| RHPLAN_44880 | RHPLAN_44880 | 0 | 100 | RHPLAN_05720 | 2.00E-107 | 45.09202454 |
| RHPLAN_30180 | RHPLAN_30180 | 0 | 100 | RHPLAN_30190 | 6.00E-106 | 45.0617284 |
| RHPLAN_10460 | RHPLAN_10460 | 0 | 100 | RHPLAN_48810 | 2.00E-100 | 45.01510574 |
| RHPLAN_25530 | RHPLAN_25530 | 0 | 100 | RHPLAN_48240 | 3.00E-113 | 44.95412844 |
| RHPLAN_61440 | RHPLAN_61440 | 0 | 100 | RHPLAN_15310 | 5.00E-97 | 43.9628483 |
| RHPLAN_21850 | RHPLAN_21850 | 0 | 100 | RHPLAN_67770 | 3.00E-90 | 44.82758621 |
| RHPLAN_47960 | RHPLAN_47960 | 0 | 100 | RHPLAN_65150 | 5.00E-92 | 44.72049689 |
| RHPLAN_58670 | RHPLAN_58670 | 0 | 100 | RHPLAN_36450 | 1.00E-98 | 43.16770186 |
| RHPLAN_59110 | RHPLAN_59110 | 0 | 100 | RHPLAN_33770 | 2.00E-91 | 43.16109422 |
| RHPLAN_20930 | RHPLAN_20930 | 0 | 100 | RHPLAN_30090 | 1.00E-102 | 43.07692308 |
| RHPLAN_31560 | RHPLAN_31560 | 0 | 100 | RHPLAN_24580 | 2.00E-98 | 43.07692308 |
| RHPLAN_06330 | RHPLAN_06330 | 0 | 100 | RHPLAN_68390 | 3.00E-96 | 43.07692308 |
| RHPLAN_58960 | RHPLAN_58960 | 0 | 100 | RHPLAN_70110 | 8.00E-102 | 42.98780488 |
| RHPLAN_30130 | RHPLAN_30130 | 0 | 100 | RHPLAN_30909 | 1.00E-102 | 42.85714286 |
| RHPLAN_51540 | RHPLAN_51540 | 0 | 100 | RHPLAN_62490 | 5.00E-97 | 42.85714286 |
| RHPLAN_13310 | RHPLAN_13310 | 0 | 100 | RHPLAN_16890 | 7.00E-102 | 42.85714286 |
| RHPLAN_11300 | RHPLAN_11300 | 0 | 100 | RHPLAN_61440 | 1.00E-106 | 42.85714286 |
| RHPLAN_25520 | RHPLAN_25520 | 0 | 100 | RHPLAN_09560 | 4.00E-94 | 42.85714286 |
| RHPLAN_16410 | RHPLAN_16410 | 0 | 100 | RHPLAN_59110 | 1.00E-92 | 42.8125 |
| RHPLAN_24580 | RHPLAN_24580 | 0 | 100 | RHPLAN_31560 | 1.00E-88 | 42.7244582 |
| RHPLAN_33770 | RHPLAN_33770 | 0 | 100 | RHPLAN_20930 | 2.00E-91 | 42.72727273 |
| RHPLAN_67770 | RHPLAN_67770 | 0 | 100 | RHPLAN_00600 | 1.00E-92 | 42.7244582 |
| RHPLAN_68400 | RHPLAN_68400 | 0 | 100 | RHPLAN_51130 | 1.00E-92 | 42.68656716 |
| RHPLAN_39180 | RHPLAN_39180 | 0 | 100 | RHPLAN_48240 | 3.00E-103 | 42.63803681 |
| RHPLAN_20870 | RHPLAN_20870 | 0 | 100 | RHPLAN_55850 | 8.00E-96 | 42.60869565 |
| RHPLAN_66640 | RHPLAN_66640 | 0 | 100 | RHPLAN_65150 | 1.00E-90 | 42.59259259 |
| RHPLAN_39180 | RHPLAN_39180 | 0 | 100 | RHPLAN_13810 | 3.00E-94 | 42.54658385 |
| RHPLAN_01890 | RHPLAN_01890 | 0 | 100 | RHPLAN_21460 | 4.00E-96 | 42.50764526 |
| RHPLAN_34980 | RHPLAN_34980 | 0 | 100 | RHPLAN_08400 | 3.00E-93 | 42.41486068 |
| RHPLAN_01490 | RHPLAN_01490 | 0 | 100 | RHPLAN_08400 | 6.00E-99 | 42.41486068 |
| RHPLAN_45260 | RHPLAN_45260 | 0 | 100 | RHPLAN_68450 | 2.00E-91 | 42.20183486 |
| RHPLAN_61650 | RHPLAN_61650 | 0 | 100 | RHPLAN_08360 | 5.00E-86 | 41.92546584 |
| RHPLAN_43740 | RHPLAN_43740 | 0 | 100 | RHPLAN_65150 | 8.00E-89 | 41.84615385 |
| RHPLAN_16550 | RHPLAN_16550 | 0 | 100 | RHPLAN_11300 | 7.00E-94 | 41.79566563 |
| RHPLAN_30600 | RHPLAN_30600 | 0 | 100 | RHPLAN_33880 | 6.00E-85 | 41.5853659 |
| RHPLAN_05100 | RHPLAN_05100 | 0 | 100 | RHPLAN_67770 | 3.00E-82 | 41.5853659 |
| RHPLAN_02900 | RHPLAN_02900 | 0 | 100 | RHPLAN_13810 | 3.00E-94 | 41.4938272 |
| RHPLAN_42140 | RHPLAN_42140 | 0 | 100 | RHPLAN_01790 | 5.00E-89 | 41.4938272 |
| RHPLAN_37970 | RHPLAN_37970 | 0 | 100 | RHPLAN_26980 | 4.00E-84 | 38.19875776 |
|-------------|-------------|---|-----|-------------|----------|-------------|
| RHPLAN_28370 | RHPLAN_28370 | 0 | 100 | RHPLAN_08370 | 2.00E-74 | 38.125 |
| RHPLAN_35220 | RHPLAN_35220 | 0 | 100 | RHPLAN_08370 | 4.00E-78 | 38.08049536 |
| RHPLAN_23880 | RHPLAN_23880 | 0 | 100 | RHPLAN_25890 | 4.00E-75 | 37.99392097 |
| RHPLAN_62500 | RHPLAN_62500 | 0 | 100 | RHPLAN_39290 | 1.00E-63 | 37.9204893 |
| RHPLAN_16380 | RHPLAN_16380 | 0 | 100 | RHPLAN_01490 | 1.00E-76 | 37.84615385 |
| RHPLAN_58750 | RHPLAN_58750 | 0 | 100 | RHPLAN_65150 | 5.00E-77 | 37.84615385 |
| RHPLAN_13610 | RHPLAN_13610 | 0 | 100 | RHPLAN_09720 | 4.00E-67 | 37.8125 |
| RHPLAN_49190 | RHPLAN_49190 | 0 | 100 | RHPLAN_47960 | 8.00E-83 | 37.79761905 |
| RHPLAN_09220 | RHPLAN_09220 | 0 | 100 | RHPLAN_09560 | 2.00E-83 | 37.76435045 |
| RHPLAN_26980 | RHPLAN_26980 | 0 | 100 | RHPLAN_37970 | 4.00E-84 | 37.73006135 |
| RHPLAN_33470 | RHPLAN_33470 | 0 | 100 | RHPLAN_19330 | 2.00E-76 | 37.73006135 |
| RHPLAN_51480 | RHPLAN_51480 | 0 | 100 | RHPLAN_23520 | 1.00E-70 | 37.6899696 |
| RHPLAN_61330 | RHPLAN_61330 | 0 | 100 | RHPLAN_47960 | 1.00E-78 | 37.6146789 |
| RHPLAN_59100 | RHPLAN_59100 | 0 | 100 | RHPLAN_00600 | 1.00E-75 | 37.53943218 |
| RHPLAN_67270 | RHPLAN_67270 | 0 | 100 | RHPLAN_39290 | 6.00E-72 | 37.53846154 |
| RHPLAN_60590 | RHPLAN_60590 | 0 | 100 | RHPLAN_39180 | 1.00E-83 | 37.5 |
| RHPLAN_57770 | RHPLAN_57770 | 0 | 100 | RHPLAN_11350 | 6.00E-77 | 37.42331288 |
| RHPLAN_36470 | RHPLAN_36470 | 0 | 100 | RHPLAN_23520 | 1.00E-82 | 37.16012085 |
| RHPLAN_14570 | RHPLAN_14570 | 0 | 100 | RHPLAN_09560 | 3.00E-77 | 37.15170279 |
| RHPLAN_68150 | RHPLAN_68150 | 0 | 100 | RHPLAN_49500 | 5.00E-92 | 37.15170279 |
| RHPLAN_51330 | RHPLAN_51330 | 0 | 100 | RHPLAN_49080 | 1.00E-73 | 37.11656442 |
| RHPLAN_38640 | RHPLAN_38640 | 0 | 100 | RHPLAN_21000 | 8.00E-83 | 37.0030581 |
| RHPLAN_42820 | RHPLAN_42820 | 0 | 100 | RHPLAN_21460 | 1.00E-69 | 36.92307692 |
| RHPLAN_27850 | RHPLAN_27850 | 0 | 100 | RHPLAN_10530 | 6.00E-75 | 36.875 |
| RHPLAN_35970 | RHPLAN_35970 | 0 | 100 | RHPLAN_31600 | 4.00E-59 | 36.70886076 |
| RHPLAN_51560 | RHPLAN_51560 | 0 | 100 | RHPLAN_53850 | 1.00E-86 | 36.61538462 |
| RHPLAN_53930 | RHPLAN_53930 | 0 | 100 | RHPLAN_05720 | 3.00E-71 | 36.55589124 |
| RHPLAN_08140 | RHPLAN_08140 | 0 | 100 | RHPLAN_27760 | 1.00E-71 | 36.44578313 |
| RHPLAN_25950 | RHPLAN_25950 | 0 | 100 | RHPLAN_01890 | 4.00E-78 | 36.36363636 |
| RHPLAN_25900 | RHPLAN_25900 | 0 | 100 | RHPLAN_10320 | 1.00E-66 | 36.33633634 |
| RHPLAN_68030 | RHPLAN_68030 | 0 | 100 | RHPLAN_66640 | 9.00E-73 | 36.22291022 |
| RHPLAN_28180 | RHPLAN_28180 | 0 | 100 | RHPLAN_05450 | 5.00E-68 | 36.01190476 |
| RHPLAN_20840 | RHPLAN_20840 | 0 | 100 | RHPLAN_34540 | 1.00E-73 | 35.96491228 |
| RHPLAN_58410 | RHPLAN_58410 | 0 | 100 | RHPLAN_13310 | 1.00E-74 | 35.92814371 |
| RHPLAN_47630 | RHPLAN_47630 | 0 | 100 | RHPLAN_21460 | 4.00E-73 | 35.77981651 |
| RHPLAN_40110 | RHPLAN_40110 | 0 | 100 | RHPLAN_30840 | 5.00E-75 | 35.67073171 |
| RHPLAN_25870 | RHPLAN_25870 | 0 | 100 | RHPLAN_67770 | 4.00E-67 | 35.51401869 |
| RHPLAN_62280 | RHPLAN_62280 | 0 | 100 | RHPLAN_51560 | 2.00E-76 | 35.39325843 |
| RHPLAN_34270 | RHPLAN_34270 | 0 | 100 | RHPLAN_30230 | 3.00E-61 | 35.36585366 |
| RHPLAN_37070 | RHPLAN_37070 | 0 | 100 | RHPLAN_30230 | 5.00E-69 | 35.27607362 |
| RHPLAN_00700 | RHPLAN_00700 | 0 | 100 | RHPLAN_05450 | 5.00E-68 | 35.0931677 |
| RHPLAN_48210 | RHPLAN_48210 | 0 | 100 | RHPLAN_34540 | 1.00E-73 | 34.94623656 |
| RHPLAN_30860 | RHPLAN_30860 | 0 | 100 | RHPLAN_47590 | 2.00E-75 | 34.93975904 |
| RHPLAN_09720 | RHPLAN_09720 | 0 | 100 | RHPLAN_13610 | 8.00E-65 | 34.89096573 |
| RHPLAN_59410 | RHPLAN_59410 | 0 | 100 | RHPLAN_08460 | 3.00E-58 | 34.75609756 |
| RHPLAN_57890 | RHPLAN_57890 | 0   | 100 | RHPLAN_54250 | 7.00E-73  | 34.65045593 |
|---------------|---------------|-----|-----|---------------|-----------|-------------|
| RHPLAN_26490 | RHPLAN_26490 | 0   | 100 | RHPLAN_43730 | 1.00E-63  | 34.56790123 |
| RHPLAN_32860 | RHPLAN_32860 | 0   | 100 | RHPLAN_25260 | 4.00E-71  | 34.15384615 |
| RHPLAN_14440 | RHPLAN_14440 | 0   | 100 | RHPLAN_14980 | 5.00E-63  | 34.03614458 |
| RHPLAN_26950 | RHPLAN_26950 | 0   | 100 | RHPLAN_19180 | 4.00E-57  | 33.53658537 |
| RHPLAN_30690 | RHPLAN_30690 | 0   | 100 | RHPLAN_13310 | 7.00E-90  | 33.41708543 |
| RHPLAN_33940 | RHPLAN_33940 | 0   | 100 | RHPLAN_53850 | 4.00E-77  | 33.33333333 |
| RHPLAN_30730 | RHPLAN_30730 | 0   | 100 | RHPLAN_65670 | 6.00E-64  | 33.33333333 |
| RHPLAN_65400 | RHPLAN_65400 | 0   | 100 | RHPLAN_02900 | 3.00E-68  | 33.33333333 |
| RHPLAN_57900 | RHPLAN_57900 | 0   | 100 | RHPLAN_30090 | 1.00E-63  | 33.33333333 |
| RHPLAN_33610 | RHPLAN_33610 | 0   | 100 | RHPLAN_09720 | 2.00E-56  | 33.2278481  |
| RHPLAN_08230 | RHPLAN_08230 | 0   | 100 | RHPLAN_37850 | 1.00E-61  | 32.11009174 |
| RHPLAN_32410 | RHPLAN_32410 | 0   | 100 | RHPLAN_23520 | 2.00E-58  | 31.70731707 |
| RHPLAN_30230 | RHPLAN_30230 | 0   | 100 | RHPLAN_23870 | 9.00E-72  | 31.14754098 |
| RHPLAN_18900 | RHPLAN_18900 | 0   | 100 | RHPLAN_30260 | 2.00E-33  | 30.18292683 |
| RHPLAN_61230 | RHPLAN_61230 | 0   | 100 | RHPLAN_59660 | 5.00E-43  | 29.75460123 |
| RHPLAN_30260 | RHPLAN_30260 | 0   | 100 | RHPLAN_18900 | 6.00E-34  | 29.73760933 |
| RHPLAN_59670 | RHPLAN_59670 | 0   | 100 | RHPLAN_34260 | 5.00E-45  | 29.02208202 |
| RHPLAN_13080 | RHPLAN_13080 | 0   | 100 | RHPLAN_59660 | 6.00E-39  | 26.48809524 |
| RHPLAN_59660 | RHPLAN_59660 | 0   | 100 | RHPLAN_61230 | 2.00E-41  | 25.51928783 |
The top 10 hits for each protein are shown, with their respective e-values.

| hit2 locus  | eval   | % identity  | hit3 locus  | eval   | % identity  | hit4 locus  |
|------------|--------|-------------|------------|--------|-------------|------------|
| RHPLAN_10710 | 2.00E-98 | 40.59701493 | RHPLAN_53850 | 4.00E-86 | 37.31343284 | RHPLAN_02340 |
| RHPLAN_10480 | 6.00E-132 | 51.06382979 | RHPLAN_29570 | 4.00E-131 | 51.06382979 | RHPLAN_14330 |
| RHPLAN_14330 | 3.00E-134 | 55.6231003  | RHPLAN_29570 | 1.00E-130 | 51.06382979 | RHPLAN_10480 |
| RHPLAN_08460 | 9.00E-114 | 50.15384615 | RHPLAN_70100 | 6.00E-108 | 46.15384615 | RHPLAN_28300 |
| RHPLAN_08460 | 5.00E-108 | 46.15384615 | RHPLAN_70100 | 3.00E-101 | 45.38461544 | RHPLAN_58960 |
| RHPLAN_34980 | 8.00E-72  | 38.65030675 | RHPLAN_54070 | 1.00E-71  | 35.27607362 | RHPLAN_08370 |
| RHPLAN_54070 | 1.00E-67  | 35.27607362 | RHPLAN_34980 | 3.00E-63  | 35.27607362 | RHPLAN_08370 |
| RHPLAN_10710 | 5.00E-101 | 36.48293963 | RHPLAN_53850 | 2.00E-85  | 32.80839895 | RHPLAN_02340 |
| RHPLAN_62120 | 7.00E-107 | 46.93251534 | RHPLAN_25000 | 2.00E-95  | 43.55828221 | RHPLAN_35410 |
| RHPLAN_62120 | 2.00E-95  | 43.55828221 | RHPLAN_25000 | 9.00E-89  | 42.02453988 | RHPLAN_35410 |
| RHPLAN_30600 | 5.00E-61  | 34.6875      | RHPLAN_00980 | 2.00E-60  | 32.8125      | RHPLAN_05720 |
| RHPLAN_29610 | 5.00E-123 | 53.63636364 | RHPLAN_05720 | 6.00E-66  | 36.06060606 | RHPLAN_10460 |
| RHPLAN_55530 | 2.00E-111 | 45.25993884 | RHPLAN_42140 | 2.00E-87  | 39.44954128 | RHPLAN_08400 |
| RHPLAN_29610 | 4.00E-111 | 49.8489426  | RHPLAN_05720 | 2.00E-61  | 34.44108761 | RHPLAN_65670 |
| RHPLAN_55530 | 6.00E-114 | 46.76923077 | RHPLAN_67770 | 2.00E-95  | 40.92307692 | RHPLAN_00600 |
| RHPLAN_07700 | 2.00E-153 | 65.2173913  | RHPLAN_45780 | 3.00E-101 | 44.40993789 | RHPLAN_10090 |
| RHPLAN_07700 | 2.00E-147 | 64.72392638 | RHPLAN_45780 | 2.00E-101 | 45.39877301 | RHPLAN_28330 |
| RHPLAN_08370 | 2.00E-65  | 36.64569627 | RHPLAN_05720 | 2.00E-64  | 36.64569627 | RHPLAN_47590 |
| RHPLAN_24530 | 4.00E-112 | 46.43962848 | RHPLAN_31580 | 4.00E-110 | 48.29721362 | RHPLAN_31600 |
| RHPLAN_41890 | 7.00E-157 | 64.26426426 | RHPLAN_45780 | 4.00E-103 | 45.04504505 | RHPLAN_28330 |
| RHPLAN_31580 | 4.00E-115 | 48.29721362 | RHPLAN_24530 | 4.00E-114 | 48.29721362 | RHPLAN_31600 |
| RHPLAN_27530 | 7.00E-144 | 59.20245399 | RHPLAN_25890 | 8.00E-138 | 57.05521472 | RHPLAN_39790 |
| RHPLAN_08380 | 1.00E-130 | 55.10835913 | RHPLAN_17980 | 1.00E-125 | 56.0371517  | RHPLAN_56300 |
| RHPLAN_33880 | 8.00E-125 | 52.30769231 | RHPLAN_43730 | 8.00E-119 | 50.46153846 | RHPLAN_40150 |
| RHPLAN_17980 | 2.00E-119 | 53.86996904 | RHPLAN_56300 | 2.00E-119 | 51.39318885 | RHPLAN_08380 |
| RHPLAN_27530 | 8.00E-138 | 56.37982196 | RHPLAN_24530 | 4.00E-112 | 48.29721362 | RHPLAN_31600 |
| RHPLAN_43730 | 3.00E-123 | 50            | RHPLAN_33880 | 8.00E-138 | 58.28220859 | RHPLAN_19370 |
| RHPLAN_18390 | 5.00E-112 | 49.39393939 | RHPLAN_05720 | 3.00E-92  | 40            | RHPLAN_05720 |
| RHPLAN_33880 | 8.00E-138 | 58.28220859 | RHPLAN_25890 | 1.00E-131 | 55.21472393 | RHPLAN_32090 |
| RHPLAN_19370 | 1.00E-101 | 43.125         | RHPLAN_54250 | 4.00E-121 | 50.6097561  | RHPLAN_39790 |
| RHPLAN_61660 | 7.00E-83  | 38.53211009   | RHPLAN_25890 | 8.00E-82  | 40.06116208 | RHPLAN_26030 |
| RHPLAN_18390 | 8.00E-116 | 49.85074627   | RHPLAN_05720 | 1.00E-86  | 40            | RHPLAN_39290 |
| RHPLAN_01490 | 7.00E-77  | 37.42331288   | RHPLAN_27760 | 3.00E-76  | 39.87730061 | RHPLAN_41990 |
| RHPLAN_14980 | 1.00E-86  | 41.35802469   | RHPLAN_25890 | 8.00E-86  | 41.35802469 | RHPLAN_05720 |
| RHPLAN_67770 | 1.00E-86  | 39.50617284   | RHPLAN_64850 | 3.00E-86  | 39.50617284 | RHPLAN_14980 |
| RHPLAN_43730 | 2.00E-133 | 56.74846626   | RHPLAN_40150 | 4.00E-129 | 55.52147239 | RHPLAN_25890 |
| RHPLAN_33880 | 1.00E-129 | 55.21472393   | RHPLAN_18490 | 7.00E-127 | 54.60122699 | RHPLAN_27530 |
| RHPLAN_61660 | 4.00E-85  | 37.34939759   | RHPLAN_29570 | 1.00E-84  | 38.55421687 | RHPLAN_16870 |
| Plan Code    | Value    | Percentage  | Rank     | Value    | Percentage  | Rank     | Value    | Percentage  | Rank     |
|-------------|----------|-------------|----------|----------|-------------|----------|----------|-------------|----------|
| RHPLAN_01490 | 1.00E-90 | 41.43302181 | RHPLAN_51420 | 2.00E-82 | 39.87538941 | RHPLAN_49090 |
| RHPLAN_10480 | 1.00E-123 | 50.46439628 | RHPLAN_36420 | 3.00E-82 | 55.07692308 | RHPLAN_06670 |
| RHPLAN_27530 | 1.00E-131 | 55.38461538 | RHPLAN_33880 | 7.00E-130 | 51.2345679 | RHPLAN_26030 |
| RHPLAN_62680 | 6.00E-130 | 54.32098765 | RHPLAN_29570 | 1.00E-127 | 51.3245679 | RHPLAN_26030 |
| RHPLAN_30180 | 7.00E-106 | 45.625 | RHPLAN_61800 | 9.00E-106 | 50.73938941 | RHPLAN_49090 |
| RHPLAN_62680 | 5.00E-132 | 52.0123839 | RHPLAN_36420 | 2.00E-131 | 53.56037152 | RHPLAN_29570 |
| RHPLAN_29590 | 3.00E-122 | 51.68195719 | RHPLAN_32270 | 1.00E-102 | 43.42507645 | RHPLAN_15440 |
| RHPLAN_30180 | 3.00E-100 | 51.38461538 | RHPLAN_61800 | 3.00E-94 | 53.2345679 | RHPLAN_39920 |
| RHPLAN_41990 | 2.00E-127 | 54.22424242 | RHPLAN_06670 | 8.00E-128 | 54.84848485 | RHPLAN_19130 |
| RHPLAN_59760 | 9.00E-118 | 50.30120482 | RHPLAN_01890 | 5.00E-67 | 43.42507645 | RHPLAN_15440 |
| RHPLAN_29590 | 2.00E-130 | 53.29341317 | RHPLAN_60850 | 4.00E-109 | 44.61077844 | RHPLAN_32270 |
| RHPLAN_32090 | 9.00E-126 | 51.38461538 | RHPLAN_43730 | 7.00E-124 | 50.46153846 | RHPLAN_25890 |
| RHPLAN_33880 | 9.00E-131 | 56.61538462 | RHPLAN_39790 | 2.00E-127 | 54.84848485 | RHPLAN_19130 |
| RHPLAN_54250 | 5.00E-102 | 40.23323615 | RHPLAN_33880 | 9.00E-126 | 51.38461538 | RHPLAN_39920 |
| RHPLAN_62680 | 4.00E-113 | 46.70658683 | RHPLAN_40150 | 7.00E-118 | 49.38650307 | RHPLAN_27530 |
| RHPLAN_25890 | 2.00E-113 | 52.79503106 | RHPLAN_43730 | 3.00E-129 | 51.8404908 | RHPLAN_40150 |
| RHPLAN_43730 | 3.00E-127 | 52.14723926 | RHPLAN_40150 | 8.00E-125 | 48.77300614 | RHPLAN_18490 |
| RHPLAN_48520 | 2.00E-72 | 47.48858447 | RHPLAN_33390 | 1.00E-71 | 44.74885847 | RHPLAN_39180 |
| RHPLAN_64470 | 3.00E-116 | 55.10835913 | RHPLAN_16830 | 5.00E-121 | 52.0123839 | RHPLAN_16850 |
| RHPLAN_51560 | 3.00E-82 | 38.08049536 | RHPLAN_67770 | 3.00E-81 | 42.10526317 | RHPLAN_60760 |
| RHPLAN_41990 | 9.00E-130 | 53.82262997 | RHPLAN_40460 | 8.00E-123 | 51.41955836 | RHPLAN_43980 |
| RHPLAN_10480 | 2.00E-124 | 48.6415385 | RHPLAN_08860 | 1.00E-110 | 50.77399381 | RHPLAN_13800 |
| RHPLAN_11360 | 5.00E-116 | 54.08163265 | RHPLAN_51230 | 9.00E-109 | 49.23547401 | RHPLAN_49090 |
| RHPLAN_12400 | 8.00E-113 | 54.62962963 | RHPLAN_18490 | 5.00E-121 | 54.32098765 | RHPLAN_33880 |
| RHPLAN_48130 | 3.00E-123 | 54.62962963 | RHPLAN_39790 | 5.00E-121 | 54.32098765 | RHPLAN_33880 |
| RHPLAN_23510 | 8.00E-108 | 46.4153846 | RHPLAN_01620 | 3.00E-87 | 39.07692308 | RHPLAN_08370 |
| RHPLAN_53850 | 4.00E-119 | 47.36842105 | RHPLAN_02340 | 9.00E-110 | 49.23547401 | RHPLAN_49090 |
| RHPLAN_17970 | 7.00E-102 | 45.0310559 | RHPLAN_01260 | 5.00E-116 | 50.77399381 | RHPLAN_13800 |
| RHPLAN_05720 | 3.00E-109 | 46.15384615 | RHPLAN_64850 | 8.00E-108 | 52 | RHPLAN_39290 |
| RHPLAN_18490 | 6.00E-115 | 50.9202454 | RHPLAN_27530 | 3.00E-114 | 49.6325153 | RHPLAN_64850 |
| RHPLAN_10090 | 6.00E-100 | 46.70846395 | RHPLAN_28330 | 5.00E-98 | 43.26018809 | RHPLAN_41890 |
| RHPLAN_33260 | 4.00E-112 | 46.43962848 | RHPLAN_27720 | 2.00E-89 | 42.41486068 | RHPLAN_42140 |
| RHPLAN_59450 | 4.00E-117 | 52.30769231 | RHPLAN_28330 | 5.00E-98 | 43.26018809 | RHPLAN_64850 |
| RHPLAN_11590 | 6.00E-100 | 47.09480122 | RHPLAN_28330 | 5.00E-98 | 43.26018809 | RHPLAN_64850 |
| RHPLAN_18490 | 1.00E-113 | 48.929966361 | RHPLAN_41890 | 6.00E-115 | 50.9202454 | RHPLAN_27720 |
| RHPLAN_19140 | 1.00E-125 | 54.07854985 | RHPLAN_36420 | 3.00E-123 | 51.96374622 | RHPLAN_39290 |
| RHPLAN_08370 | 3.00E-105 | 42.94294294 | RHPLAN_08380 | 2.00E-104 | 43.54354354 | RHPLAN_17980 |
| RHPLAN_60850 | 5.00E-121 | 50.61349693 | RHPLAN_35610 | 1.00E-120 | 49.38650307 | RHPLAN_39290 |
| RHPLAN_08380 | 2.00E-116 | 50.52071006 | RHPLAN_39920 | 2.00E-101 | 46.64634146 | RHPLAN_14980 |
| RHPLAN_05720 | 2.00E-112 | 46.34146341 | RHPLAN_39290 | 3.00E-112 | 47.25609756 | RHPLAN_39290 |
| RHPLAN_18490 | 2.00E-113 | 53.56037152 | RHPLAN_09560 | 1.00E-91 | 39.9380805 | RHPLAN_21460 |
| RHPLAN_16870 | 2.00E-113 | 46.74922601 | RHPLAN_09560 | 1.00E-91 | 39.9380805 | RHPLAN_21460 |
| RHPLAN_64470 | 6.00E-125 | 52.59938838 | RHPLAN_36420 | 3.00E-123 | 51.96374622 | RHPLAN_39290 |
| RHPLAN_16830 | 8.00E-105 | 46.50545927 | RHPLAN_13210 | 3.00E-101 | 45.2887538 | RHPLAN_39290 |
| RHPLAN_24970 | 1.00E-94 | 40.35608309 | RHPLAN_30810 | 1.00E-94 | 40.35608309 | RHPLAN_16590 |
| RHPLAN_16130 | 3.00E-88 | 40.65281899 | RHPLAN_21990 | 6.00E-87 | 38.27160494 | RHPLAN_01300 |
| RHPLAN_43970 | 1.00E-94 | 51.87969925 | RHPLAN_33930 | 1.00E-109 | 47.56097561 | RHPLAN_39290 |
| RHPLAN_16830 | 3.00E-123 | 49.69135802 | RHPLAN_37230 | 6.00E-120 | 49.69135802 | RHPLAN_39290 |
| RHPLAN_17970 | 5.00E-122 | 50.75987842 | RHPLAN_17980 | 6.00E-105 | 44.3768997 | RHPLAN_39290 |
| RHPLAN_70120 | 9.00E-112 | 45.59270517 | RHPLAN_70110 | 3.00E-93 | 39.88095238 | RHPLAN_39290 |
| RHPLAN_37230 | 8.00E-113 | 49.37888199 | RHPLAN_23690 | 2.00E-106 | 52.48447205 | RHPLAN_01300 |
| RHPLAN_38640 | 7.00E-80 | 37.34567901 | RHPLAN_21460 | 3.00E-68 | 38.27160494 | RHPLAN_01490 |
| RHPLAN_30100 | 1.00E-114 | 52.13414634 | RHPLAN_16830 | 6.00E-117 | 49.39393939 | RHPLAN_09560 |
| RHPLAN_26020 | 2.00E-122 | 50.75987842 | RHPLAN_41890 | 2.00E-101 | 48.44250765 | RHPLAN_68400 |
| RHPLAN_30520 | 2.00E-128 | 53.37423313 | RHPLAN_40460 | 5.00E-107 | 44.78527607 | RHPLAN_39290 |
| RHPLAN_29570 | 2.00E-117 | 47.69230769 | RHPLAN_16850 | 6.00E-110 | 48 | RHPLAN_68400 |
| RHPLAN_34510 | 1.00E-94 | 45.23076923 | RHPLAN_27920 | 4.00E-79 | 38.46153846 | RHPLAN_02340 |
| RHPLAN_28330 | 1.00E-103 | 46.48318043 | RHPLAN_41890 | 2.00E-101 | 45.25993884 | RHPLAN_28550 |
| RHPLAN_11590 | 4.00E-97 | 44.47761194 | RHPLAN_10060 | 2.00E-90 | 43.58208955 | RHPLAN_68400 |
| RHPLAN_30210 | 1.00E-114 | 52.13414634 | RHPLAN_05720 | 3.00E-114 | 49.6325153 | RHPLAN_39290 |
| RHPLAN_36420 | 7.00E-119 | 54.34250767 | RHPLAN_16830 | 6.00E-117 | 49.39393939 | RHPLAN_64470 |
| RHPLAN_56560 | 7.00E-114 | 54.43425076 | RHPLAN_08860 | 7.00E-109 | 48.62385321 | RHPLAN_30100 |
| RHPLAN_33260 | 2.00E-96 | 41.41104294 | RHPLAN_27720 | 8.00E-73 | 34.66257669 | RHPLAN_11400 |
| RHPLAN_70120 | 2.00E-99 | 44.3452381 | RHPLAN_70110 | 3.00E-93 | 39.88095238 | RHPLAN_58960 |
| RHPLAN_63280 | 1.00E-114 | 48.52071006 | RHPLAN_39920 | 3.00E-104 | 43.49112426 | RHPLAN_32090 |
| RHPLAN_36420 | 7.00E-107 | 47.6635514 | RHPLAN_16850 | 8.00E-107 | 48.28660436 | RHPLAN_10480 |
| String | Value | String | Value |
|--------|-------|--------|-------|
| RHPLAN_26010 | 6.00E-102 | RHPLAN_07690 | 1.00E-85 |
| RHPLAN_56560 | 9.00E-107 | RHPLAN_08860 | 2.00E-104 |
| RHPLAN_34250 | 1.00E-117 | RHPLAN_37230 | 3.00E-96 |
| RHPLAN_33930 | 2.00E-114 | RHPLAN_13800 | 3.00E-112 |
| RHPLAN_34510 | 9.00E-117 | RHPLAN_27920 | 3.00E-100 |
| RHPLAN_61980 | 8.00E-110 | RHPLAN_09560 | 5.00E-98 |
| RHPLAN_34980 | 2.00E-65 | RHPLAN_01280 | 1.00E-115 |
| RHPLAN_19370 | 8.00E-110 | RHPLAN_34510 | 9.00E-109 |
| RHPLAN_26010 | 1.00E-98 | RHPLAN_19090 | 1.00E-84 |
| RHPLAN_16890 | 8.00E-77 | RHPLAN_16880 | 1.00E-74 |
| RHPLAN_47960 | 7.00E-71 | RHPLAN_58720 | 7.00E-98 |
| RHPLAN_61980 | 3.00E-107 | RHPLAN_32940 | 3.00E-100 |
| RHPLAN_08370 | 3.00E-91 | RHPLAN_21990 | 5.00E-68 |
| RHPLAN_19370 | 1.00E-109 | RHPLAN_17980 | 2.00E-120 |
| RHPLAN_37230 | 9.00E-102 | RHPLAN_08360 | 6.00E-113 |
| RHPLAN_23740 | 5.00E-102 | RHPLAN_17980 | 8.00E-113 |
| RHPLAN_02340 | 3.00E-107 | RHPLAN_08380 | 6.00E-113 |
| RHPLAN_08370 | 5.00E-91 | RHPLAN_29570 | 6.00E-116 |
| RHPLAN_08370 | 5.00E-91 | RHPLAN_20660 | 7.00E-88 |
| RHPLAN_08370 | 5.00E-91 | RHPLAN_41870 | 4.00E-99 |
| RHPLAN_58110 | 6.00E-122 | RHPLAN_10480 | 5.00E-114 |
| RHPLAN_20660 | 7.00E-88 | RHPLAN_20930 | 2.00E-86 |
| RHPLAN_43360 | 4.00E-90 | RHPLAN_58110 | 3.00E-102 |
| RHPLAN_65160 | 5.00E-107 | RHPLAN_08370 | 3.00E-97 |
| Code     | Value   | Value   | Code     | Value   | Value   |
|----------|---------|---------|----------|---------|---------|
| RHPLAN_21460 | 5.00E-94 | 40.77380952 | RHPLAN_08360 | 2.00E-87 | 39.28571429 | RHPLAN_17980 |
| RHPLAN_03630 | 3.00E-81 | 37.5 | RHPLAN_67770 | 1.00E-78 | 37.1875 | RHPLAN_25000 |
| RHPLAN_60790 | 3.00E-81 | 37.5 | RHPLAN_08360 | 2.00E-87 | 39.28571429 | RHPLAN_25000 |
| RHPLAN_17980 | 3.00E-72 | 34.42 | RHPLAN_65150 | 2.00E-73 | 37.27272727 | RHPLAN_25000 |
| RHPLAN_51420 | 7.00E-92 | 41.17647059 | RHPLAN_01890 | 4.00E-90 | 40.86687307 | RHPLAN_48810 |
| RHPLAN_11590 | 1.00E-79 | 38.20895522 | RHPLAN_10720 | 6.00E-78 | 40.29850746 | RHPLAN_10060 |
| RHPLAN_26020 | 6.00E-92 | 40.79754601 | RHPLAN_21990 | 4.00E-91 | 40.67278287 | RHPLAN_48810 |
| RHPLAN_43340 | 1.00E-93 | 42.89855072 | RHPLAN_34260 | 1.00E-73 | 35.45454545 | RHPLAN_55100 |
| RHPLAN_06330 | 2.00E-86 | 41.35802469 | RHPLAN_39290 | 2.00E-84 | 40.12345679 | RHPLAN_27530 |
| RHPLAN_02900 | 1.00E-90 | 40.0621118 | RHPLAN_39290 | 2.00E-89 | 43.65325077 | RHPLAN_59450 |
| RHPLAN_25000 | 2.00E-73 | 39.7515528 | RHPLAN_63280 | 4.00E-56 | 33.74961300 | RHPLAN_16890 |
| RHPLAN_68150 | 5.00E-88 | 38.69724771 | RHPLAN_39920 | 2.00E-78 | 40.11627907 | RHPLAN_09560 |
| RHPLAN_33260 | 1.00E-92 | 40.6626506 | RHPLAN_54230 | 5.00E-75 | 40.32934783 | RHPLAN_61440 |
| RHPLAN_10080 | 6.00E-82 | 38.125 | RHPLAN_35020 | 8.00E-94 | 41.76136364 | RHPLAN_49400 |
| RHPLAN_33880 | 4.00E-88 | 44.13580247 | RHPLAN_35020 | 5.00E-88 | 39.50617284 | RHPLAN_53850 |
| RHPLAN_25530 | 3.00E-87 | 40.43209877 | RHPLAN_25000 | 2.00E-83 | 37.80487805 | RHPLAN_14980 |
| RHPLAN_16460 | 6.00E-90 | 41.56976744 | RHPLAN_36920 | 2.00E-74 | 38.1097561 | RHPLAN_08360 |
| RHPLAN_02340 | 4.00E-94 | 39.48863636 | RHPLAN_35020 | 5.00E-90 | 40.86687307 | RHPLAN_48810 |
| RHPLAN_25880 | 1.00E-83 | 40.54878049 | RHPLAN_20930 | 2.00E-83 | 37.80487805 | RHPLAN_14980 |
| RHPLAN_27760 | 2.00E-74 | 38.1097561 | RHPLAN_39920 | 2.00E-74 | 38.1097561 | RHPLAN_14980 |
| RHPLAN_69350 | 1.00E-90 | 40.18691589 | RHPLAN_09560 | 4.00E-89 | 40.18691589 | RHPLAN_41140 |
| RHPLAN_68890 | 7.00E-86 | 41.66666667 | RHPLAN_09560 | 7.00E-85 | 41.66666667 | RHPLAN_33260 |
| RHPLAN_05720 | 4.00E-87 | 38.88888889 | RHPLAN_19330 | 4.00E-89 | 43.02134868 | RHPLAN_09560 |
| RHPLAN_20930 | 1.00E-77 | 37.96296296 | RHPLAN_33770 | 2.00E-74 | 40.12345679 | RHPLAN_39920 |
| RHPLAN_27740 | 2.00E-90 | 43.59756098 | RHPLAN_06330 | 3.00E-90 | 44.81707317 | RHPLAN_20930 |
| RHPLAN_49080 | 5.00E-93 | 41.33738602 | RHPLAN_65430 | 1.00E-92 | 39.20972644 | RHPLAN_01490 |
| RHPLAN_14980 | 7.00E-75 | 36.22754491 | RHPLAN_65050 | 8.00E-75 | 36.22754491 | RHPLAN_65150 |
| RHPLAN_01490 | 6.00E-93 | 38.64306785 | RHPLAN_11410 | 1.00E-92 | 38.05309735 | RHPLAN_49080 |
| RHPLAN_49090 | 3.00E-94 | 43.47826087 | RHPLAN_06330 | 6.00E-93 | 42.85714286 | RHPLAN_11410 |
| RHPLAN_36150 | 5.00E-83 | 38.55421687 | RHPLAN_27760 | 6.00E-78 | 37.34939759 | RHPLAN_21460 |
| RHPLAN_21460 | 7.00E-85 | 40.24767802 | RHPLAN_53940 | 3.00E-82 | 40.55727554 | RHPLAN_34260 |
| RHPLAN_65050 | 5.00E-89 | 39.06705539 | RHPLAN_56300 | 3.00E-83 | 39.26380368 | RHPLAN_55850 |
| RHPLAN_19360 | 8.00E-94 | 42.98780488 | RHPLAN_23740 | 1.00E-90 | 40.24390244 | RHPLAN_56560 |
| RHPLAN_67770 | 7.00E-87 | 40.80996885 | RHPLAN_20930 | 8.00E-85 | 41.12149533 | RHPLAN_30100 |
| RHPLAN_68190 | 4.00E-76 | 40.61538462 | RHPLAN_65150 | 7.00E-83 | 41.71779141 | RHPLAN_34980 |
| RHPLAN_02340 | 8.00E-85 | 40.24767802 | RHPLAN_57910 | 1.00E-85 | 38.41463415 | RHPLAN_08210 |
| RHPLAN_42150 | 5.00E-81 | 37.38317757 | RHPLAN_34720 | 9.00E-74 | 37.60623053 | RHPLAN_42150 |
| RHPLAN_15110 | 2.00E-85 | 35.59306748 | RHPLAN_21460 | 4.00E-70 | 36.36363636 | RHPLAN_09560 |
| RHPLAN_30510 | 3.00E-82 | 39.19753086 | RHPLAN_30100 | 3.00E-82 | 39.19753086 | RHPLAN_14020 |
| RHPLAN_21460 | 3.00E-70 | 36.36363636 | RHPLAN_01890 | 4.00E-70 | 36.36363636 | RHPLAN_47590 |
| RHPLAN_05730 | 9.00E-75 | 34.69387755 | RHPLAN_01890 | 9.00E-75 | 34.69387755 | RHPLAN_38620 |
| RHPLAN_47590 | 2.00E-67 | 39.81481481 | RHPLAN_35840 | 2.00E-67 | 39.81481481 | RHPLAN_54810 |
| RHPLAN_09560 | 1.00E-80 | 39.09090909 | RHPLAN_01490 | 1.00E-80 | 39.09090909 | RHPLAN_58960 |
| RHPLAN_37150 | 6.00E-86 | 38.76923077 | RHPLAN_01490 | 1.00E-80 | 39.09090909 | RHPLAN_65670 |
| RHPLAN_54090 | 2.00E-72 | 36.22291022 | RHPLAN_01490 | 3.00E-76 | 36.39706986 | RHPLAN_49080 |
| RHPLAN_19090 | 7.00E-57 | 35.85657371 | RHPLAN_11410 | 2.00E-76 | 36.85657371 | RHPLAN_40900 |
| RHPLAN_67770 | 1.00E-72 | 37.61467899 | RHPLAN_05720 | 1.00E-76 | 37.61467899 | RHPLAN_09560 |
| RHPLAN_21990 | 2.00E-78 | 40.0621118 | RHPLAN_34250 | 2.00E-76 | 36.95652174 | RHPLAN_09560 |
| RHPLAN_23520 | 2.00E-72 | 36.64596273 | RHPLAN_61800 | 8.00E-68 | 35.71428571 | RHPLAN_54810 |
|---------------|---------|-------------|--------------|---------|-------------|--------------|
| RHPLAN_27760 | 3.00E-73 | 38.75 | RHPLAN_51420 | 2.00E-72 | 36.875 | RHPLAN_67770 |
| RHPLAN_30090 | 6.00E-78 | 36.53250774 | RHPLAN_23510 | 2.00E-77 | 40.12158055 | RHPLAN_25000 |
| RHPLAN_23510 | 1.00E-72 | 36.7781155 | RHPLAN_61980 | 2.00E-72 | 40.12158055 | RHPLAN_08370 |
| RHPLAN_64850 | 3.00E-73 | 38.75 | RHPLAN_51420 | 9.00E-60 | 33.9495413 | RHPLAN_65670 |
| RHPLAN_33880 | 6.00E-78 | 36.53250774 | RHPLAN_23510 | 2.00E-77 | 34.6875 | RHPLAN_51520 |
| RHPLAN_23510 | 1.00E-72 | 36.7781155 | RHPLAN_61980 | 2.00E-72 | 34.6875 | RHPLAN_49470 |
| RHPLAN_05720 | 3.00E-76 | 39.07692308 | RHPLAN_35220 | 4.00E-75 | 37.23076923 | RHPLAN_23520 |
| RHPLAN_14980 | 1.00E-71 | 39.26380368 | RHPLAN_01300 | 1.00E-49 | 34.6875 | RHPLAN_00980 |
| RHPLAN_08370 | 7.00E-81 | 38.06646526 | RHPLAN_39290 | 1.00E-79 | 39.57703927 | RHPLAN_68890 |
| RHPLAN_14980 | 4.00E-77 | 37.6146789 | RHPLAN_48520 | 7.00E-81 | 38.7195122 | RHPLAN_16830 |
| RHPLAN_55530 | 8.00E-74 | 36.61538462 | RHPLAN_01290 | 2.00E-70 | 30.67484663 | RHPLAN_09560 |
| RHPLAN_09560 | 1.00E-71 | 37.53846154 | RHPLAN_34980 | 4.00E-49 | 34.375 | RHPLAN_51420 |
| RHPLAN_48520 | 7.00E-81 | 38.06646526 | RHPLAN_65150 | 7.00E-79 | 35.29411765 | RHPLAN_21460 |
| RHPLAN_19300 | 1.00E-72 | 34.96932515 | RHPLAN_02340 | 8.00E-65 | 34.61538462 | RHPLAN_14980 |
| RHPLAN_65150 | 1.00E-72 | 34.96932515 | RHPLAN_09560 | 1.00E-71 | 37.53846154 | RHPLAN_65150 |
| RHPLAN_01890 | 9.00E-76 | 35.29411765 | RHPLAN_02340 | 1.00E-60 | 33.84146341 | RHPLAN_33390 |
| RHPLAN_65150 | 1.00E-65 | 36.47416413 | RHPLAN_01300 | 1.00E-49 | 34.6875 | RHPLAN_65050 |
| RHPLAN_65150 | 7.00E-52 | 32.27848101 | RHPLAN_62490 | 2.00E-51 | 33.84146341 | RHPLAN_33470 |
| RHPLAN_32090 | 3.00E-83 | 41.23076923 | RHPLAN_30510 | 3.00E-74 | 35.9375 | RHPLAN_34260 |
| RHPLAN_01490 | 2.00E-68 | 34.73420242 | RHPLAN_30510 | 3.00E-71 | 36.58536585 | RHPLAN_34260 |
| RHPLAN_16890 | 4.00E-77 | 33.74233129 | RHPLAN_47590 | 9.00E-72 | 33.63914373 | RHPLAN_32100 |
| RHPLAN_23520 | 9.00E-72 | 33.69932515 | RHPLAN_30510 | 7.00E-66 | 36.13707165 | RHPLAN_32090 |
| RHPLAN_23520 | 3.00E-68 | 34.50292398 | RHPLAN_30510 | 3.00E-74 | 35.9375 | RHPLAN_34540 |
| RHPLAN_47590 | 2.00E-86 | 36.02510538 | RHPLAN_39920 | 1.00E-64 | 32.44074619 | RHPLAN_51420 |
| RHPLAN_39290 | 7.00E-61 | 31.7031707 | RHPLAN_02340 | 1.00E-60 | 33.84146341 | RHPLAN_34260 |
| RHPLAN_37850 | 3.00E-67 | 34.04907975 | RHPLAN_00600 | 3.00E-65 | 35.88957055 | RHPLAN_33470 |
| RHPLAN_23520 | 1.00E-71 | 35.71428571 | RHPLAN_51420 | 9.00E-60 | 33.9495413 | RHPLAN_34260 |
| RHPLAN_23520 | 5.00E-73 | 38.62257449 | RHPLAN_30510 | 5.00E-73 | 37.7245509 | RHPLAN_34220 |
| RHPLAN_47590 | 9.00E-72 | 33.69143473 | RHPLAN_32090 | 3.00E-70 | 37.3088685 | RHPLAN_06670 |
| RHPLAN_30090 | 3.00E-69 | 34.50292398 | RHPLAN_39920 | 3.00E-71 | 36.51685393 | RHPLAN_51420 |
| RHPLAN_23520 | 5.00E-74 | 35.71428571 | RHPLAN_32090 | 3.00E-65 | 35.88957055 | RHPLAN_33470 |
| RHPLAN_23520 | 5.00E-74 | 35.71428571 | RHPLAN_30510 | 3.00E-70 | 39.13043478 | RHPLAN_68890 |
| RHPLAN_25890 | 5.00E-86 | 36.02150538 | RHPLAN_39920 | 3.00E-71 | 36.51685393 | RHPLAN_51420 |
| RHPLAN_05720 | 4.00E-75 | 35.54216867 | RHPLAN_14980 | 2.00E-74 | 35.54216867 | RHPLAN_05730 |
| RHPLAN_33610 | 6.00E-53 | 32.71028037 | RHPLAN_38860 | 1.00E-49 | 31.15264798 | RHPLAN_67770 |
| RHPLAN_05730 | 9.00E-58 | 31.7031707 | RHPLAN_65150 | 2.00E-56 | 34.75609756 | RHPLAN_08870 |
| RHPLAN_70120 | 2.00E-71 35.8662614 | RHPLAN_19370 | 5.00E-71 33.43465046 | RHPLAN_19360 |
|-------------|-----------------|-------------|-----------------|-------------|
| RHPLAN_25260 | 3.00E-62 32.40740741 | RHPLAN_49470 | 2.00E-61 36.72839506 | RHPLAN_17990 |
| RHPLAN_54810 | 1.00E-69 36.61538462 | RHPLAN_21990 | 7.00E-69 34.46153846 | RHPLAN_59580 |
| RHPLAN_27740 | 2.00E-61 36.14457831 | RHPLAN_34980 | 7.00E-58 35.24096386 | RHPLAN_34260 |
| RHPLAN_39920 | 7.00E-57 28.96341463 | RHPLAN_08210 | 2.00E-55 32.01219512 | RHPLAN_27760 |
| RHPLAN_16460 | 1.00E-89 35.42713568 | RHPLAN_42310 | 3.00E-88 34.67336683 | RHPLAN_61440 |
| RHPLAN_60760 | 4.00E-77 36.28318584 | RHPLAN_34220 | 1.00E-75 36.57817109 | RHPLAN_34250 |
| RHPLAN_23520 | 8.00E-63 36.11111111 | RHPLAN_08380 | 2.00E-61 36.11111111 | RHPLAN_34220 |
| RHPLAN_47960 | 2.00E-67 34.25076453 | RHPLAN_05720 | 4.00E-67 33.63914373 | RHPLAN_64510 |
| RHPLAN_08400 | 3.00E-60 33.33333333 | RHPLAN_41140 | 4.00E-60 34.87654321 | RHPLAN_08370 |
| RHPLAN_32100 | 2.00E-55 34.17721519 | RHPLAN_21990 | 9.00E-51 33.86075949 | RHPLAN_34980 |
| RHPLAN_47590 | 2.00E-60 32.72171254 | RHPLAN_39920 | 1.00E-58 30.58103976 | RHPLAN_31600 |
| RHPLAN_41140 | 4.00E-58 34.14634146 | RHPLAN_34260 | 1.00E-56 30.79268293 | RHPLAN_65150 |
| RHPLAN_33470 | 2.00E-71 31.14754098 | RHPLAN_35030 | 5.00E-69 32.24043716 | RHPLAN_37070 |
| RHPLAN_08400 | 9.00E-27 23.7804878 | RHPLAN_11360 | 5.00E-24 23.7804878 | RHPLAN_51440 |
| RHPLAN_13080 | 7.00E-39 28.52760736 | RHPLAN_38680 | 3.00E-38 28.2208589 | RHPLAN_02340 |
| RHPLAN_24970 | 3.00E-19 22.44897959 | RHPLAN_08400 | 2.00E-18 23.61516035 | RHPLAN_59350 |
| RHPLAN_06330 | 2.00E-44 30.28391167 | RHPLAN_31600 | 3.00E-44 28.07570978 | RHPLAN_08400 |
| RHPLAN_61230 | 8.00E-39 27.67857143 | RHPLAN_30100 | 7.00E-33 28.57142857 | RHPLAN_59670 |
| RHPLAN_13080 | 3.00E-36 26.40949555 | RHPLAN_65150 | 1.00E-32 28.18991098 | RHPLAN_21990 |
| eval     | % identity | hit5 locus | eval     | % identity | hit6 locus | eval   |
|---------|------------|-----------|---------|------------|-----------|--------|
| 8.00E-81  | 35.82089552 | RHPLAN_42150 | 3.00E-80  | 35.52238806 | RHPLAN_34260 | 5.00E-79  |
| 6.00E-129 | 53.19148936 | RHPLAN_16830 | 5.00E-125 | 48.32826748 | RHPLAN_21700 | 2.00E-121 |
| 2.00E-129 | 50.45592705 | RHPLAN_16830 | 2.00E-128 | 51.67173252 | RHPLAN_16850 | 6.00E-125 |
| 2.00E-99  | 45.84615385 | RHPLAN_58960 | 2.00E-96  | 41.53846154 | RHPLAN_47590 | 1.00E-91  |
| 5.00E-100 | 42.15384615 | RHPLAN_28300 | 3.00E-93  | 41.23076923 | RHPLAN_47590 | 2.00E-88  |
| 1.00E-67  | 34.66257669 | RHPLAN_49480 | 1.00E-67  | 36.19631902 | RHPLAN_26010 | 7.00E-67  |
| 1.00E-61  | 32.51537422 | RHPLAN_26010 | 3.00E-61  | 33.43558282 | RHPLAN_54630 | 2.00E-60  |
| 8.00E-82  | 33.59580052 | RHPLAN_34260 | 6.00E-80  | 31.75853018 | RHPLAN_30090 | 2.00E-78  |
| 8.00E-95  | 41.10429448 | RHPLAN_58960 | 2.00E-99  | 45.84615385 | RHPLAN_16850 | 2.00E-91  |
| 5.00E-100 | 43.78819888 | RHPLAN_28330 | 4.00E-98  | 44.40993789 | RHPLAN_57910 | 2.00E-98  |
| 1.00E-98  | 44.47827611 | RHPLAN_57910 | 5.00E-98  | 43.25153374 | RHPLAN_10090 | 8.00E-97  |
| 6.00E-63  | 36.66666667 | RHPLAN_47590 | 2.00E-63  | 37.27272727 | RHPLAN_32270 | 1.00E-60  |
| 7.00E-86  | 38.83792054 | RHPLAN_14980 | 8.00E-86  | 40.06116208 | RHPLAN_47590 | 2.00E-85  |
| 4.00E-61  | 37.76343545 | RHPLAN_01890 | 7.00E-61  | 36.25377644 | RHPLAN_47590 | 8.00E-60  |
| 4.00E-91  | 40.49079755 | RHPLAN_21460 | 5.00E-91  | 38.76923077 | RHPLAN_39920 | 3.00E-89  |
| 1.00E-100 | 43.78881988 | RHPLAN_28330 | 4.00E-98  | 44.40993789 | RHPLAN_57910 | 2.00E-98  |
| 1.00E-98  | 44.47852761 | RHPLAN_57910 | 5.00E-98  | 43.25153374 | RHPLAN_10090 | 8.00E-97  |
| 6.00E-136 | 57.97546012 | RHPLAN_40150 | 2.00E-131 | 56.13496933 | RHPLAN_18490 | 6.00E-131 |
| 2.00E-120 | 49.84520124 | RHPLAN_17970 | 1.00E-108 | 43.65325077 | RHPLAN_17990 | 2.00E-106 |
| 1.00E-117 | 48.30769231 | RHPLAN_25890 | 7.00E-116 | 49.53846154 | RHPLAN_27530 | 8.00E-115 |
| 1.00E-116 | 51.70278638 | RHPLAN_17990 | 2.00E-103 | 45.82043344 | RHPLAN_09560 | 4.00E-102 |
| 1.00E-132 | 53.115727    | RHPLAN_17990 | 7.00E-130 | 53.115727   | RHPLAN_18490 | 3.00E-129 |
| 7.00E-114 | 49.08536585 | RHPLAN_25890 | 2.00E-112 | 47.25609756 | RHPLAN_27530 | 2.00E-111 |
| 2.00E-85  | 40.90909091 | RHPLAN_39290 | 2.00E-85  | 38.78787879 | RHPLAN_47590 | 9.00E-80  |
| 3.00E-127 | 52.14723926 | RHPLAN_40150 | 1.00E-124 | 54.60122699 | RHPLAN_06670 | 9.00E-124 |
| 4.00E-94  | 41.87503067 | RHPLAN_47590 | 2.00E-77  | 39.0625     | RHPLAN_57890 | 1.00E-69  |
| 4.00E-81  | 40.67278287 | RHPLAN_16870 | 3.00E-79  | 38.53211009 | RHPLAN_32270 | 2.00E-75  |
| 1.00E-84  | 40.49079755 | RHPLAN_47590 | 1.00E-82  | 41.49253731 | RHPLAN_05730 | 3.00E-81  |
| 3.00E-74  | 46.50306748 | RHPLAN_42140 | 2.00E-73  | 36.80981595 | RHPLAN_65150 | 2.00E-72  |
| 9.00E-85  | 40.74074074 | RHPLAN_48130 | 2.00E-83  | 41.35802469 | RHPLAN_01890 | 8.00E-83  |
| 3.00E-85  | 42.59259259 | RHPLAN_68390 | 5.00E-85  | 42.28395062 | RHPLAN_11400 | 1.00E-83  |
| 1.00E-128 | 51.53374233 | RHPLAN_27530 | 1.00E-127 | 54.29447853 | RHPLAN_28880 | 1.00E-127 |
| 2.00E-125 | 53.37423313 | RHPLAN_10320 | 1.00E-124 | 55.52147239 | RHPLAN_32090 | 1.00E-124 |
| 2.00E-83  | 38.55421687 | RHPLAN_26030 | 2.00E-82  | 39.75903614 | RHPLAN_16850 | 3.00E-82  |
| Value | Description | Value | Description | Value | Description |
|-------|-------------|-------|-------------|-------|-------------|
| 3.00E-81 | RHPLAN_08460 | 3.00E-80 | RHPLAN_06670 | 7.00E-80 | |
| 5.00E-119 | RHPLAN_29570 | 5.00E-118 | RHPLAN_62680 | 4.00E-115 | |
| 2.00E-123 | RHPLAN_19130 | 1.00E-123 | RHPLAN_40150 | 8.00E-123 | |
| 3.00E-117 | RHPLAN_16830 | 1.00E-116 | RHPLAN_10480 | 3.00E-114 | |
| 1.00E-79 | RHPLAN_34540 | 4.00E-78 | RHPLAN_06330 | 1.00E-77 | |
| 5.00E-119 | RHPLAN_29570 | 5.00E-118 | RHPLAN_62680 | 4.00E-115 | |
| 2.00E-123 | RHPLAN_19130 | 1.00E-123 | RHPLAN_40150 | 8.00E-123 | |
| 3.00E-117 | RHPLAN_16830 | 1.00E-116 | RHPLAN_10480 | 3.00E-114 | |
| 5.00E-104 | 47.38461538 | RHPLAN_58720 | 1.00E-100 | 44.61538462 | RHPLAN_47960 | 3.00E-100 |
| 3.00E-113 | 50.30674847 | RHPLAN_43730 | 6.00E-113 | 47.85276074 | RHPLAN_25890 | 1.00E-112 |
| 5.00E-98  | 44.20062696 | RHPLAN_28550 | 8.00E-97  | 42.63322884 | RHPLAN_07700 | 8.00E-95  |
| 6.00E-89  | 41.17647059 | RHPLAN_60760 | 9.00E-87  | 42.41486068 | RHPLAN_08370 | 3.00E-81  |
| 1.00E-109 | 46.76923077 | RHPLAN_13800 | 9.00E-108 | 43.69399399 | RHPLAN_48220 | 1.00E-83  |
| 3.00E-87  | 42.50764526 | RHPLAN_08370 | 4.00E-70  | 36.69724771 | RHPLAN_54630 | 2.00E-69  |
| 2.00E-107 | 46.48318043 | RHPLAN_44880 | 2.00E-107 | 44.95412844 | RHPLAN_05710 | 8.00E-106 |
| 4.00E-123 | 50.75528701 | RHPLAN_64470 | 9.00E-118 | 50.1510574  | RHPLAN_29570 | 1.00E-117 |
| 2.00E-107 | 46.48318043 | RHPLAN_44880 | 2.00E-107 | 44.95412844 | RHPLAN_05710 | 8.00E-106 |
| 1.00E-109 | 46.48318043 | RHPLAN_44880 | 2.00E-107 | 44.95412844 | RHPLAN_05710 | 8.00E-106 |
| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| 4.00E-83 | RHPPLAN_34980 | 1.00E-82 | RHPPLAN_35020 |
| 2.00E-102 | RHPPLAN_11360 | 3.00E-105 | RHPPLAN_15440 |
| 5.00E-75 | RHPPLAN_27760 | 5.00E-91 | RHPPLAN_14980 |
| 5.00E-96 | RHPPLAN_01300 | 1.00E-96 | RHPPLAN_27760 |
| 2.00E-113 | RHPPLAN_11360 | 4.00E-113 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-82 | RHPPLAN_01300 | 4.00E-82 | RHPPLAN_27760 |
| 4.00E-97 | RHPPLAN_19600 | 1.00E-97 | RHPPLAN_19600 |
| 4.00E-82 | RHPPLAN_19900 | 5.00E-95 | RHPPLAN_21990 |
| 4.00E-102 | RHPPLAN_11360 | 5.00E-102 | RHPPLAN_60850 |
| 4.00E-83 | RHPPLAN_19600 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_09560 | 3.00E-74 | RHPPLAN_51420 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| 4.00E-83 | RHPPLAN_49480 | 3.00E-82 | RHPPLAN_35020 |
| 4.00E-74 | RHPPLAN_57700 | 3.00E-72 | RHPPLAN_57700 |
| 6.00E-70 | RHPPLAN_27760 | 6.00E-70 | RHPPLAN_27760 |
| 6.00E-91 | RHPPLAN_14980 | 3.00E-89 | RHPPLAN_35020 |
| 3.00E-101 | RHPPLAN_47240 | 5.00E-88 | RHPPLAN_57890 |
| RHPLAN_label      | Value1 | Value2 | RHPLAN_label | Value1 | Value2 | RHPLAN_label | Value1 | Value2 | RHPLAN_label | Value1 | Value2 | RHPLAN_label | Value1 | Value2 |
|-------------------|--------|--------|--------------|--------|--------|--------------|--------|--------|--------------|--------|--------|--------------|--------|--------|
| 3.00E-70          | 35.8662614 | 5.00E-70 | RHPLAN_19290 | 35.25835866 | 9.00E-68 |
| 1.00E-60          | 34.56790123 | 2.00E-60 | RHPLAN_60790 | 35.49382716 | 3.00E-60 |
| 2.00E-68          | 33.53846154 | 8.00E-68 | RHPLAN_67770 | 35.69230769 | 3.00E-67 |
| 6.00E-57          | 31.92771084 | 8.00E-57 | RHPLAN_21460 | 32.53012048 | 1.00E-56 |
| 8.00E-55          | 31.70731707 | 3.00E-55 | RHPLAN_43980 | 29.57317073 | 1.00E-52 |
| 3.00E-85          | 34.17085427 | 3.00E-77 | RHPLAN_54090 | 30.65326633 | 3.00E-73 |
| 2.00E-74          | 34.21828909 | 3.00E-73 | RHPLAN_08370 | 35.39823009 | 8.00E-73 |
| 6.00E-59          | 31.79012346 | 2.00E-58 | RHPLAN_56300 | 31.79012346 | 3.00E-58 |
| 6.00E-67          | 35.16819572 | 7.00E-67 | RHPLAN_19130 | 36.69724771 | 1.00E-66 |
| 3.00E-58          | 31.17283951 | 3.00E-58 | RHPLAN_49480 | 36.11111111 | 5.00E-58 |
| 2.00E-50          | 35.12658228 | 5.00E-50 | RHPLAN_61440 | 32.91139241 | 1.00E-48 |
| 4.00E-56          | 31.49847095 | 1.00E-55 | RHPLAN_54810 | 33.02752294 | 3.00E-55 |
| 2.00E-56          | 31.70731707 | 3.00E-56 | RHPLAN_16890 | 33.53658537 | 6.00E-55 |
| 3.00E-66          | 29.23497268 | 1.00E-65 | RHPLAN_39920 | 28.68852459 | 1.00E-64 |
| 5.00E-23          | 25.30487805 | 4.00E-22 | RHPLAN_06330 | 24.69512195 | 8.00E-22 |
| 2.00E-32          | 28.22085859 | 4.00E-31 | RHPLAN_68450 | 26.3803681 | 7.00E-31 |
| 5.00E-18          | 26.82215743 | 2.00E-16 | RHPLAN_25260 | 22.44897959 | 7.00E-16 |
| 2.00E-43          | 27.12933754 | 2.00E-43 | RHPLAN_25000 | 26.1829653 | 4.00E-43 |
| 5.00E-31          | 22.02380952 | 1.00E-30 | RHPLAN_38680 | 26.19047619 | 2.00E-30 |
| 6.00E-31          | 25.81602374 | 6.00E-31 | RHPLAN_59670 | 26.11275964 | 1.00E-29 |
| % identity | hit7 locus     | eval    | % identity | hit8 locus     | eval    | % identity |
|------------|---------------|---------|------------|---------------|---------|------------|
| 35.2238806 | RHPLAN_10350  | 4.00E-78| 37.31343284| RHPLAN_30090  | 5.00E-78| 31.94029851|
| 52.88753799| RHPLAN_11700  | 6.00E-118| 49.54407295| RHPLAN_36420  | 3.00E-116| 47.72036474|
| 51.97568389| RHPLAN_21700  | 2.00E-122| 54.10334347| RHPLAN_11700  | 4.00E-121| 52.27963526|
| 43.07692308| RHPLAN_67770  | 6.00E-88 | 42.15384615| RHPLAN_14980  | 2.00E-86 | 40.61538462|
| 41.84613585| RHPLAN_61650  | 7.00E-83 | 38.46153846| RHPLAN_51420  | 3.00E-82 | 40.92307692|
| 37.11656442| RHPLAN_25530  | 6.00E-66 | 35.58282209| RHPLAN_05720  | 8.00E-66 | 37.11656442|
| 36.19631902| RHPLAN_56560  | 6.00E-60 | 36.50306748| RHPLAN_27740  | 8.00E-60 | 33.12883436|
| 34.54545455| RHPLAN_42150  | 2.00E-60 | 35.45454545| RHPLAN_39290  | 4.00E-60 | 34.54545455|
| 30.24844728| RHPLAN_00600  | 7.00E-85 | 40.06116208| RHPLAN_05720  | 3.00E-84 | 38.53211009|
| 35.64954683| RHPLAN_08400  | 2.00E-59 | 34.4108761 | RHPLAN_65150  | 6.00E-59 | 35.04531722|
| 39.69230769| RHPLAN_25000  | 8.00E-89 | 42.76923077| RHPLAN_1890   | 1.00E-88 | 38.76923077|
| 42.23602484| RHPLAN_07740  | 3.00E-68 | 36.64596273| RHPLAN_41990  | 1.00E-50 | 30.74534161|
| 41.71779141| RHPLAN_07740  | 7.00E-75 | 39.03903904| RHPLAN_26010  | 7.00E-47 | 27.32732732|
| 36.02484472| RHPLAN_05710  | 3.00E-60 | 38.81987578| RHPLAN_09560  | 8.00E-60 | 36.45962733|
| 31.88854489| RHPLAN_34980  | 2.00E-70 | 35.29411765| RHPLAN_67770  | 8.00E-73 | 38.08049536|
| 41.44144144| RHPLAN_07740  | 9.00E-75 | 39.03903904| RHPLAN_26010  | 7.00E-47 | 27.32732732|
| 39.62848297| RHPLAN_34980  | 2.00E-73 | 38.39092888| RHPLAN_05730  | 8.00E-73 | 39.31888545|
| 55.21472393| RHPLAN_19130  | 3.00E-129| 54.90797546| RHPLAN_06670  | 8.00E-128| 56.74846626|
| 45.20123839| RHPLAN_14980  | 1.00E-100| 44.89164087| RHPLAN_09560  | 2.00E-100| 43.65325077|
| 49.53846154| RHPLAN_06670  | 3.00E-113| 48.00000000| RHPLAN_19130  | 5.00E-110| 47.38461538|
| 46.43962848| RHPLAN_17970  | 5.00E-102| 43.65325077| RHPLAN_21460  | 2.00E-99 | 43.03405573|
| 54.59940653| RHPLAN_39790  | 4.00E-128| 53.41246291| RHPLAN_32090  | 8.00E-128| 52.52225519|
| 45.42682927| RHPLAN_18490  | 5.00E-108| 46.95121951| RHPLAN_32090  | 5.00E-106| 44.81707317|
| 38.48484848| RHPLAN_51420  | 4.00E-79 | 42.12121212| RHPLAN_05710  | 8.00E-78 | 37.27272727|
| 51.53374233| RHPLAN_18490  | 1.00E-122| 55.52147239| RHPLAN_39790  | 2.00E-122| 53.37423313|
| 35.3125     | RHPLAN_34510  | 1.00E-66 | 36.25000000| RHPLAN_65670  | 7.00E-64 | 32.18750000|
| 37.3088685  | RHPLAN_19140  | 3.00E-75 | 39.14373089| RHPLAN_16810  | 4.00E-75 | 37.3088685 |
| 40.29850746 | RHPLAN_05710  | 4.00E-80 | 38.80597015| RHPLAN_05740  | 2.00E-78 | 39.40295807|
| 35.8857055  | RHPLAN_30520  | 4.00E-72 | 36.19631902| RHPLAN_16450  | 1.00E-71 | 35.58282209|
| 38.27160494 | RHPLAN_21460  | 8.00E-80 | 39.19753086| RHPLAN_60930  | 1.00E-79 | 39.50617284|
| 41.04938272 | RHPLAN_27760  | 1.00E-83 | 39.50617284| RHPLAN_60930  | 4.00E-83 | 42.28395062|
| 53.98773006 | RHPLAN_10320  | 5.00E-123| 55.21472393| RHPLAN_18490  | 1.00E-122| 52.76073626|
| 51.22699387 | RHPLAN_19130  | 6.00E-120| 50.30674847| RHPLAN_25890  | 3.00E-119| 52.76073626|
| 42.46987952 | RHPLAN_58110  | 6.00E-82 | 40.06024096| RHPLAN_16810  | 6.00E-80 | 37.95180723|
| RHPLAN_49480 | 6.00E-82 | 42.41486068 | RHPLAN_10460 | 4.00E-81 | 40.55727554 |
| RHPLAN_19130 | 8.00E-84 | 38.90577508 | RHPLAN_61440 | 7.00E-82 | 36.7781155 |
| RHPLAN_14980 | 2.00E-73 | 38.95705521 | RHPLAN_37850 | 6.00E-72 | 35.58282209 |
| RHPLAN_29420 | 2.00E-99 | 45.53846154 | RHPLAN_29590 | 3.00E-97 | 45.84615385 |
| RHPLAN_51420 | 7.00E-72 | 34.73420242 | RHPLAN_51250 | 3.00E-69 | 37.16012085 |
| RHPLAN_05720 | 1.00E-88 | 38.73873874 | RHPLAN_16890 | 7.00E-88 | 38.43843844 |
| RHPLAN_58720 | 1.00E-93 | 40.99378882 | RHPLAN_05730 | 1.00E-92 | 43.16770186 |
| RHPLAN_34980 | 1.00E-94 | 44.24242424 | RHPLAN_19330 | 1.00E-92 | 41.81818182 |
| RHPLAN_34250 | 4.00E-72 | 34.45121951 | RHPLAN_42140 | 4.00E-72 | 36.58536585 |
| RHPLAN_51420 | 7.00E-70 | 35.58282209 | RHPLAN_65150 | 3.00E-69 | 35.43543544 |
| RHPLAN_05730 | 1.00E-88 | 38.73873874 | RHPLAN_27760 | 6.00E-62 | 35.15151515 |
| RHPLAN_33880 | 1.00E-85 | 45.23076923 | RHPLAN_49400 | 1.00E-85 | 44.92307692 |
| RHPLAN_68890 | 1.00E-92 | 37.6899696 | RHPLAN_70100 | 2.00E-77 | 37.91411043 |
| RHPLAN_34220 | 5.00E-56 | 33.03303303 | RHPLAN_05720 | 1.00E-55 | 31.83183183 |
| RHPLAN_51420 | 1.00E-81 | 37.6899696 | RHPLAN_70100 | 5.00E-81 | 37.08206687 |
| RHPLAN_47610 | 4.00E-88 | 42.94670846 | RHPLAN_05720 | 2.00E-87 | 38.60182371 |
| RHPLAN_65670 | 2.00E-61 | 34.04907975 | RHPLAN_37850 | 2.00E-58 | 32.82208589 |
| RHPLAN_37730 | 4.00E-109 | 47.72036474 | RHPLAN_21790 | 6.00E-109 | 49.54407295 |
| RHPLAN_65150 | 3.00E-73 | 39.07692308 | RHPLAN_05720 | 8.00E-73 | 36.61538462 |
| RHPLAN_33880 | 1.00E-85 | 44.92307692 | RHPLAN_49400 | 1.00E-85 | 44.92307692 |
| RHPLAN_42150 | 2.00E-87 | 41.95428875 | RHPLAN_53850 | 1.00E-92 | 42.65536723 |
| RHPLAN_60770 | 7.00E-59 | 33.63363363 | RHPLAN_14980 | 1.00E-58 | 33.93939393 |
| RHPLAN_05730 | 8.00E-87 | 37.6899696 | RHPLAN_70100 | 5.00E-81 | 37.08206687 |
| RHPLAN_29420 | 7.00E-98 | 46.46153846 | RHPLAN_29590 | 2.00E-97 | 43.69230769 |
| RHPLAN_34250 | 2.00E-86 | 45.0310559 | RHPLAN_49470 | 1.00E-85 | 45.34161491 |
| RHPLAN_25260 | 8.00E-72 | 36.25 | RHPLAN_21990 | 6.00E-71 | 35 |
| RHPLAN_37730 | 4.00E-109 | 47.72036474 | RHPLAN_21790 | 6.00E-109 | 49.54407295 |
| RHPLAN_65150 | 3.00E-73 | 39.07692308 | RHPLAN_05720 | 8.00E-73 | 36.61538462 |
| RHPLAN_33470 | 7.00E-67 | 34.15384615 | RHPLAN_60790 | 2.00E-66 | 33.84615385 |
| RHPLAN_67770 | 4.00E-76 | 37.20930233 | RHPLAN_33880 | 1.00E-72 | 37.79069767 |
| RHPLAN_58540 | 3.00E-105 | 45.25993884 | RHPLAN_15440 | 1.00E-104 | 44.03669725 |
| RHPLAN_27530 | 2.00E-103 | 42.76923077 | RHPLAN_32090 | 6.00E-103 | 45.53846154 |
| RHPLAN_30840 | 8.00E-71 | 38.94080997 | RHPLAN_39290 | 2.00E-70 | 35.82554517 |
| RHPLAN_65150 | 5.00E-85 | 43.26018809 | RHPLAN_56650 | 2.00E-84 | 45.76802508 |
| RHPLAN_07810 | 2.00E-69 | 34.93975904 | RHPLAN_10350 | 2.00E-69 | 35.54216867 |
| RHPLAN_00600 | 6.00E-78 | 35.49382716 | RHPLAN_47590 | 2.00E-76 | 36.72839506 |
| RHPLAN_10530 | 1.00E-75 | 37.84615385 | RHPLAN_16890 | 6.00E-75 | 39.38461538 |
| RHPLAN_16380 | 1.00E-105 | 45.23076923 | RHPLAN_26030 | 1.00E-104 | 46.15384615 |
| RHPLAN_16380 | 8.00E-62 | 33.12693498 | RHPLAN_19330 | 1.00E-61 | 39.0928793 |
| RHPLAN_17980 | 7.00E-70 | 34.73420242 | RHPLAN_40150 | 5.00E-72 | 39.9380805 |
| RHPLAN_50910 | 4.00E-93 | 41.12426036 | RHPLAN_43730 | 1.00E-92 | 39.64497041 |
| Plan | Yr | Qtr | Month | Day | Year | Code | Value |
|------|----|-----|-------|-----|------|------|-------|
| RHPLAN_08380 | 39.88095238 | 8.00E-85 | 40.17857143 | RHPLAN_10460 | 9.00E-84 | 38.69047619 |
| RHPLAN_05720 | 37.8125 | 2.00E-73 | 34.375 |
| RHPLAN_67770 | 35.60830861 | 2.00E-73 | 34.375 |
| RHPLAN_23870 | 38.78787879 | 7.00E-72 | 36.06060606 |
| RHPLAN_65150 | 40.55727554 | 3.00E-81 | 41.97530864 |
| RHPLAN_17980 | 32.8358209 | 4.00E-62 | 34.32835821 |
| RHPLAN_05720 | 38.69047619 | 9.00E-84 | 38.241486068 |
| RHPLAN_0098 | 38.78787879 | 7.00E-66 | 34.12462908 |
| RHPLAN_67770 | 40.55727554 | 1.00E-89 | 35.89047619 |
| RHPLAN_16400 | 41.28440367 | 7.00E-68 | 35.45454545 |
| RHPLAN_05720 | 42.05607477 | 6.00E-78 | 35.67073171 |
| RHPLAN_62490 | 39.81481481 | 6.00E-72 | 35.36585366 |
| RHPLAN_06190 | 39.19753086 | 7.00E-85 | 37.34567901 |
| RHPLAN_0130 | 38.53211009 | 7.00E-72 | 37.34567901 |
| RHPLAN_0189 | 39.19753086 | 9.00E-84 | 38.62928349 |
| RHPLAN_0189 | 38.53211009 | 7.00E-72 | 37.34567901 |
| RHPLAN_0130 | 39.19753086 | 7.00E-85 | 37.34567901 |
| RHPLAN_0130 | 38.53211009 | 7.00E-72 | 37.34567901 |
| RHPLAN_0130 | 39.19753086 | 7.00E-85 | 37.34567901 |
| PLAN    | RHPLAN   | X    | Y    | RHPLAN   | X    | Y    | RHPLAN   | X    | Y    |
|---------|----------|-----|-----|----------|-----|-----|----------|-----|-----|
| 37.34567901 | RHPLAN_19130 | 9.0E-68 | 37.96296296 | RHPLAN_34240 | 2.00E-65 | 37.34567901 |
| 41.15853659 | RHPLAN_19130 | 2.00E-87 | 42.37804878 | RHPLAN_48130 | 4.00E-87 | 42.68292683 |
| 35.86626140 | RHPLAN_10460 | 2.00E-77 | 35.86626140 | RHPLAN_63280 | 4.00E-77 | 38.60182371 |
| 35.62874252 | RHPLAN_00600 | 3.00E-72 | 37.4251497 | RHPLAN_63280 | 3.00E-72 | 38.32335329 |
| 37.75811209 | RHPLAN_49090 | 6.00E-82 | 38.64306785 | RHPLAN_05720 | 3.00E-80 | 37.75811209 |
| 40.37267081 | RHPLAN_49080 | 8.00E-88 | 40.37267081 | RHPLAN_09560 | 4.00E-87 | 40.0621118 |
| 32.53012048 | RHPLAN_51520 | 3.00E-71 | 31.07692308 | RHPLAN_1331 | 2.00E-55 | 34.46153846 |
| 30.79268293 | RHPLAN_01790 | 8.00E-59 | 32.31707317 | RHPLAN_0234 | 0.00E-57 | 31.09756098 |
| 40.80996885 | RHPLAN_09560 | 4.00E-81 | 38.31775701 | RHPLAN_4214 | 0.00E-80 | 38.62928349 |
| 33.53846154 | RHPLAN_39920 | 5.00E-56 | 31.07692308 | RHPLAN_1331 | 2.00E-55 | 34.46153846 |
| 38.08049536 | RHPLAN_23510 | 5.00E-77 | 37.77089783 | RHPLAN_3929 | 0.00E-86 | 37.88819876 |
| 39.93808050 | RHPLAN_60760 | 1.00E-86 | 38.19241983 | RHPLAN_23510 | 2.00E-86 | 40.23323615 |
| 37.31778426 | RHPLAN_05720 | 3.00E-71 | 31.07692308 | RHPLAN_1331 | 2.00E-55 | 34.46153846 |
| 40.49079755 | RHPLAN_00980 | 3.00E-80 | 38.3680982 | RHPLAN_3929 | 0.00E-80 | 38.62928349 |
| 34.25295296 | RHPLAN_43540 | 2.00E-77 | 40.12345679 | RHPLAN_2087 | 0.00E-77 | 38.88888889 |
| 37.26708075 | RHPLAN_08370 | 2.00E-80 | 38.31775701 | RHPLAN_4214 | 0.00E-80 | 38.62928349 |
| 36.89024390 | RHPLAN_10350 | 2.00E-68 | 38.1097561 | RHPLAN_63280 | 4.00E-68 | 36.58536585 |
| 30.7268923 | RHPLAN_01790 | 8.00E-59 | 32.31707317 | RHPLAN_0234 | 0.00E-57 | 31.09756098 |
| 40.80996885 | RHPLAN_09560 | 4.00E-81 | 38.31775701 | RHPLAN_4214 | 0.00E-80 | 38.62928349 |
| 33.53846154 | RHPLAN_39920 | 5.00E-56 | 31.07692308 | RHPLAN_1331 | 2.00E-55 | 34.46153846 |
| 38.08049536 | RHPLAN_23520 | 2.00E-77 | 37.77089783 | RHPLAN_3929 | 6.00E-75 | 38.39009288 |
| 39.93808050 | RHPLAN_60760 | 1.00E-86 | 38.19241983 | RHPLAN_23510 | 2.00E-86 | 40.23323615 |
| 37.31778426 | RHPLAN_05720 | 3.00E-71 | 31.07692308 | RHPLAN_1331 | 2.00E-55 | 34.46153846 |
| 40.49079755 | RHPLAN_00980 | 3.00E-80 | 38.3680982 | RHPLAN_3929 | 0.00E-80 | 38.62928349 |
| 34.25295296 | RHPLAN_43540 | 2.00E-77 | 40.12345679 | RHPLAN_2087 | 0.00E-77 | 38.88888889 |
| 37.26708075 | RHPLAN_08370 | 2.00E-80 | 38.31775701 | RHPLAN_4214 | 0.00E-80 | 38.62928349 |
| Code         | Name       | Value 1  | Value 2  | Code         | Name       | Value 1  | Value 2  |
|--------------|------------|----------|----------|--------------|------------|----------|----------|
| 34.95440729  | RHPLAN_70110 | 1.00E-64 | 36.17021277 | 34.95440729  | RHPLAN_01890 | 1.00E-63 | 31.91489362 |
| 32.40740741  | RHPLAN_27760 | 3.00E-60 | 36.72839506  | 32.40740741  | RHPLAN_10350 | 9.00E-60 | 35.49382716  |
| 35.38461538  | RHPLAN_48810 | 3.00E-65 | 35.38461538 | 35.38461538  | RHPLAN_09560 | 8.00E-65 | 32.61538462 |
| 31.92771084  | RHPLAN_08380 | 2.00E-56 | 36.44578313  | 31.92771084  | RHPLAN_09560 | 2.00E-56 | 32.22891566 |
| 32.01219512  | RHPLAN_19130 | 2.00E-51 | 30.48780488  | 32.01219512  | RHPLAN_69350 | 2.00E-51 | 29.26829268  |
| 31.65829146  | RHPLAN_37850 | 1.00E-70 | 29.39698492  | 31.65829146  | RHPLAN_23520 | 2.00E-69 | 30.40201005 |
| 35.69321534  | RHPLAN_27740 | 1.00E-71 | 33.62831858  | 35.69321534  | RHPLAN_43730 | 3.00E-71 | 33.62831858 |
| 32.09876543  | RHPLAN_48220 | 3.00E-58 | 30.86419753  | 32.09876543  | RHPLAN_42730 | 6.00E-58 | 30.55555556 |
| 34.86238532  | RHPLAN_21460 | 2.00E-66 | 33.63914373  | 34.86238532  | RHPLAN_00600 | 4.00E-66 | 37.00030581 |
| 32.09876543  | RHPLAN_25260 | 9.00E-58 | 30.86419753  | 32.09876543  | RHPLAN_26010 | 1.00E-57 | 31.48148148 |
| 34.17721519  | RHPLAN_34260 | 2.00E-48 | 32.59493671  | 34.17721519  | RHPLAN_68450 | 1.00E-47 | 32.59493671 |
| 34.55657492  | RHPLAN_67770 | 4.00E-54 | 31.49847095  | 34.55657492  | RHPLAN_16880 | 1.00E-53 | 32.11009174 |
| 32.01219512  | RHPLAN_06670 | 2.00E-54 | 30.48780488  | 32.01219512  | RHPLAN_65670 | 2.00E-54 | 31.70731707 |
| 28.96174863  | RHPLAN_30190 | 5.00E-64 | 32.24043716  | 28.96174863  | RHPLAN_08400 | 5.00E-63 | 30.32788885 |
| 25.91463415  | RHPLAN_23870 | 8.00E-22 | 22.56097561  | 25.91463415  | RHPLAN_35220 | 1.00E-21 | 20.12195122 |
| 27.60736196  | RHPLAN_01490 | 2.00E-30 | 25.76687117  | 27.60736196  | RHPLAN_16380 | 3.00E-30 | 26.68711656 |
| 22.44897959  | RHPLAN_05420 | 2.00E-15 | 19.53352777  | 22.44897959  | RHPLAN_51320 | 4.00E-15 | 19.82507289 |
| 31.86119874  | RHPLAN_33470 | 4.00E-43 | 28.70662461  | 31.86119874  | RHPLAN_07690 | 2.00E-42 | 27.12933754 |
| 27.97619048  | RHPLAN_39000 | 2.00E-30 | 25.29761905  | 27.97619048  | RHPLAN_43980 | 6.00E-30 | 25.89285714 |
| 24.03560831  | RHPLAN_30810 | 5.00E-29 | 28.48664688  | 24.03560831  | RHPLAN_19180 | 9.00E-29 | 26.70623145 |
| hit9 locus  | eval  | % identity | hit10 locus  | eval  | % identity |
|------------|-------|------------|--------------|-------|------------|
| RHPLAN_65150 | 2.00E-77 | 34.92537313 | RHPLAN_25000 | 1.00E-76 | 33.13432836 |
| RHPLAN_16850 | 4.00E-115 | 46.20060790 | RHPLAN_37730 | 1.00E-112 | 45.2887538 |
| RHPLAN_19140 | 7.00E-120 | 51.06382979 | RHPLAN_36420 | 8.00E-120 | 49.84802432 |
| RHPLAN_61650 | 3.00E-84 | 39.69230769 | RHPLAN_65150 | 4.00E-84 | 39.07692308 |
| RHPLAN_14980 | 1.00E-80 | 40.61538462 | RHPLAN_17980 | 4.00E-78 | 40.02416918 |
| RHPLAN_31580 | 2.00E-65 | 36.19631902 | RHPLAN_09560 | 3.00E-65 | 36.50306748 |
| RHPLAN_25530 | 2.00E-58 | 32.51533742 | RHPLAN_49480 | 2.00E-58 | 33.43558282 |
| RHPLAN_34540 | 1.00E-74 | 29.13385827 | RHPLAN_39920 | 2.00E-74 | 29.65879265 |
| RHPLAN_05720 | 3.00E-85 | 37.42331287 | RHPLAN_36420 | 8.00E-112 | 45.2887538 |
| RHPLAN_60760 | 1.00E-78 | 38.03680982 | RHPLAN_65150 | 4.00E-77 | 34.92537313 |
| RHPLAN_08360 | 1.00E-57 | 34.37500000 | RHPLAN_19330 | 2.00E-57 | 32.81250000 |
| RHPLAN_19330 | 5.00E-58 | 35.75757576 | RHPLAN_40150 | 6.00E-58 | 33.63636364 |
| RHPLAN_67770 | 3.00E-84 | 39.44954128 | RHPLAN_09560 | 3.00E-65 | 36.50306748 |
| RHPLAN_34540 | 7.00E-59 | 32.04169181 | RHPLAN_51320 | 1.00E-58 | 36.99690400 |
| RHPLAN_14980 | 2.00E-88 | 40.30769231 | RHPLAN_70120 | 5.00E-81 | 38.88888889 |
| RHPLAN_30520 | 7.00E-50 | 30.43478261 | RHPLAN_32090 | 8.00E-69 | 38.69969040 |
| RHPLAN_41990 | 2.00E-50 | 31.59509202 | RHPLAN_09560 | 3.00E-65 | 36.50306748 |
| RHPLAN_00980 | 9.00E-60 | 33.22981366 | RHPLAN_08360 | 1.00E-59 | 36.02484472 |
| RHPLAN_27530 | 6.00E-69 | 34.71799141 | RHPLAN_32090 | 8.00E-69 | 38.69969040 |
| RHPLAN_41990 | 7.00E-47 | 29.42942943 | RHPLAN_05730 | 6.00E-46 | 29.72972973 |
| RHPLAN_34260 | 1.00E-72 | 35.29411765 | RHPLAN_47590 | 7.00E-72 | 34.36532508 |
| RHPLAN_70860 | 3.00E-123 | 50.30674847 | RHPLAN_50910 | 7.00E-122 | 53.37423313 |
| RHPLAN_02340 | 1.00E-99 | 45.82043344 | RHPLAN_53850 | 3.00E-99 | 37.65432099 |
| RHPLAN_10320 | 1.00E-105 | 47.07692308 | RHPLAN_47610 | 2.00E-96 | 43.34365325 |
| RHPLAN_53850 | 8.00E-98 | 48.70769230 | RHPLAN_70860 | 7.00E-117 | 49.38650307 |
| RHPLAN_40150 | 6.00E-127 | 50.44954128 | RHPLAN_47590 | 7.00E-127 | 50.44954128 |
| RHPLAN_19130 | 8.00E-119 | 52.14723926 | RHPLAN_28880 | 4.00E-117 | 51.84094908 |
| RHPLAN_67770 | 2.00E-62 | 34.68750000 | RHPLAN_60760 | 3.00E-62 | 34.06250000 |
| RHPLAN_15450 | 1.00E-74 | 38.83792049 | RHPLAN_36420 | 1.00E-74 | 40.06116208 |
| RHPLAN_64850 | 1.00E-76 | 39.10447761 | RHPLAN_47960 | 2.00E-73 | 36.11940299 |
| RHPLAN_55530 | 1.00E-71 | 34.66257669 | RHPLAN_32090 | 2.00E-71 | 36.19631902 |
| RHPLAN_00600 | 9.00E-79 | 38.88888889 | RHPLAN_64850 | 1.00E-78 | 40.74074074 |
| RHPLAN_47590 | 7.00E-82 | 36.11111111 | RHPLAN_53850 | 1.00E-81 | 37.65432099 |
| RHPLAN_19130 | 4.00E-122 | 52.45398773 | RHPLAN_32090 | 2.00E-118 | 48.77300614 |
| RHPLAN_50910 | 7.00E-117 | 53.98773006 | RHPLAN_70860 | 7.00E-117 | 49.38650307 |
| RHPLAN_54660 | 4.00E-77 | 36.44578313 | RHPLAN_19140 | 2.00E-76 | 37.04819277 |
| ID          | Value 1     | Value 2     | ID          | Value 1     | Value 2     |
|-------------|-------------|-------------|-------------|-------------|-------------|
| RHPLAN_05740 | 2.00E-92    | 42.76923077 | RHPLAN_21460 | 1.00E-91    | 42.15384615 |
| RHPLAN_32090 | 3.00E-108   | 47.54601227 | RHPLAN_70780 | 8.00E-107   | 46.01226994 |
| RHPLAN_30840 | 7.00E-54    | 31.97492163 | RHPLAN_39920 | 7.00E-54    | 35.10971787 |
| RHPLAN_10350 | 1.00E-79    | 37.15170279 | RHPLAN_01890 | 2.00E-78    | 38.6996904  |
| RHPLAN_15440 | 5.00E-99    | 42.15384615 | RHPLAN_35610 | 3.00E-97    | 47.07692308 |
| RHPLAN_62380 | 6.00E-67    | 37.9204893  | RHPLAN_21460 | 7.00E-67    | 35.77981651 |
| RHPLAN_30840 | 7.00E-54    | 31.97492163 | RHPLAN_14330 | 8.00E-54    | 35.10971787 |
| RHPLAN_10350 | 1.00E-79    | 37.15170279 | RHPLAN_01890 | 2.00E-78    | 38.6996904  |
| RHPLAN_15440 | 5.00E-99    | 42.15384615 | RHPLAN_35610 | 3.00E-97    | 47.07692308 |
| RHPLAN_62380 | 6.00E-67    | 37.9204893  | RHPLAN_21460 | 7.00E-67    | 35.77981651 |
| RHPLAN_14980 | 3.00E-80 | 40.86687307 | RHPLAN_05720 | 2.00E-79 | 39.00928793 |
| RHPLAN_08870 | 2.00E-81 | 37.6899696 | RHPLAN_65150 | 4.00E-81 | 39.81769218 |
| RHPLAN_01890 | 2.00E-70 | 35.88597055 | RHPLAN_39920 | 2.00E-79 | 39.00928793 |
| RHPLAN_60850 | 5.00E-96 | 42.76923077 | RHPLAN_15450 | 1.00E-93 | 45.23076923 |
| RHPLAN_54360 | 5.00E-81 | 37.46223565 | RHPLAN_49480 | 4.00E-81 | 39.81769218 |
| RHPLAN_49080 | 2.00E-87 | 38.43843844 | RHPLAN_51420 | 4.00E-87 | 40.54054054 |
| RHPLAN_00980 | 3.00E-91 | 39.44099379 | RHPLAN_10350 | 1.00E-88 | 39.7515528 |
| RHPLAN_21460 | 6.00E-92 | 41.51515152 | RHPLAN_47960 | 7.00E-92 | 40.60606061 |
| RHPLAN_60760 | 5.00E-96 | 42.76923077 | RHPLAN_19330 | 1.00E-93 | 45.23076923 |
| RHPLAN_43730 | 1.00E-75 | 39.19753086 | RHPLAN_19330 | 3.00E-75 | 38.88888889 |
| RHPLAN_39920 | 3.00E-71 | 32.62195122 | RHPLAN_56300 | 3.00E-70 | 34.45121951 |
| RHPLAN_65150 | 5.00E-69 | 36.68639053 | RHPLAN_01890 | 4.00E-68 | 33.13609467 |
| RHPLAN_19330 | 9.00E-62 | 36.36363636 | RHPLAN_65050 | 1.00E-61 | 34.24242424 |
| RHPLAN_34540 | 2.00E-75 | 35.13513514 | RHPLAN_02340 | 2.00E-74 | 36.33633634 |
| RHPLAN_05720 | 8.00E-59 | 33.13069909 | RHPLAN_33260 | 2.00E-58 | 35.8662614 |
| RHPLAN_49480 | 8.00E-85 | 43.69230769 | RHPLAN_62600 | 2.00E-83 | 43.07692308 |
| RHPLAN_21990 | 3.00E-91 | 37.85310734 | RHPLAN_02340 | 2.00E-90 | 37.85310734 |
| RHPLAN_54360 | 3.00E-80 | 37.6899696 | RHPLAN_01490 | 3.00E-79 | 37.08206687 |
| RHPLAN_08380 | 2.00E-84 | 39.20972644 | RHPLAN_01490 | 1.00E-83 | 37.6899696 |
| RHPLAN_69040 | 3.00E-94 | 44.92307692 | RHPLAN_15450 | 9.00E-94 | 41.53846154 |
| RHPLAN_21460 | 3.00E-87 | 40.7523511 | RHPLAN_02340 | 2.00E-84 | 38.24451411 |
| RHPLAN_30510 | 3.00E-55 | 33.6899696 | RHPLAN_16450 | 5.00E-58 | 34.04907975 |
| RHPLAN_39290 | 2.00E-70 | 36.80981595 | RHPLAN_65050 | 1.00E-61 | 34.24242424 |
| RHPLAN_09560 | 3.00E-80 | 40.99378882 | RHPLAN_10530 | 1.00E-79 | 40.37267081 |
| RHPLAN_34540 | 2.00E-70 | 34.375 | RHPLAN_51320 | 1.00E-69 | 34.375 |
| RHPLAN_19140 | 2.00E-108 | 48.63221885 | RHPLAN_62680 | 1.00E-102 | 45.23076923 |
| RHPLAN_54810 | 1.00E-65 | 38.15384615 | RHPLAN_14980 | 3.00E-72 | 38.46153846 |
| RHPLAN_19180 | 2.00E-65 | 39.94823077 | RHPLAN_01300 | 3.00E-65 | 33.23076923 |
| RHPLAN_51520 | 6.00E-72 | 34.59302326 | RHPLAN_32090 | 6.00E-70 | 34.01162791 |
| RHPLAN_02340 | 2.00E-86 | 40.12345679 | RHPLAN_19330 | 2.00E-82 | 40.74074074 |
| RHPLAN_29420 | 1.00E-104 | 48.01223242 | RHPLAN_69040 | 1.00E-102 | 45.25993884 |
| RHPLAN_43730 | 1.00E-102 | 42.15384615 | RHPLAN_39920 | 9.00E-101 | 44.61538462 |
| RHPLAN_43980 | 2.00E-70 | 35.82554517 | RHPLAN_01490 | 5.00E-70 | 34.89096573 |
| RHPLAN_08870 | 5.00E-84 | 39.49884326 | RHPLAN_46130 | 1.00E-81 | 44.82758621 |
| RHPLAN_16450 | 3.00E-69 | 34.03614458 | RHPLAN_21460 | 3.00E-68 | 33.43373494 |
| RHPLAN_67150 | 2.00E-76 | 38.27160494 | RHPLAN_05720 | 2.00E-75 | 35.80246914 |
| RHPLAN_60790 | 9.00E-75 | 34.53453453 | RHPLAN_51420 | 2.00E-74 | 37.53846154 |
| RHPLAN_16820 | 2.00E-103 | 44 | RHPLAN_62680 | 6.00E-102 | 42.76923077 |
| RHPLAN_08370 | 5.00E-61 | 35.91331269 | RHPLAN_08400 | 2.00E-60 | 34.0572755 |
| RHPLAN_47590 | 1.00E-71 | 36.53250774 | RHPLAN_21990 | 3.00E-71 | 36.53250774 |
| RHPLAN_08360 | 2.00E-91 | 39.9408284 | RHPLAN_33880 | 5.00E-91 | 39.64497041 |
| RHPLAN   | Value 1  | Value 2  | RHPLAN   | Value 1  | Value 2  |
|----------|---------|---------|----------|---------|---------|
| RHPLAN_19140 | 2.00E-107 | 47.28915663 | RHPLAN_36420 | 2.00E-104 | 43.37349398 |
| RHPLAN_47960 | 4.00E-79  | 38.78787879  | RHPLAN_09560 | 5.00E-79  | 37.27272727  |
| RHPLAN_65150 | 5.00E-91  | 40.85365854  | RHPLAN_00980 | 2.00E-90  | 40.54878049  |
| RHPLAN_01890 | 2.00E-84  | 38.65030675  | RHPLAN_25890 | 3.00E-84  | 41.41104294  |
| RHPLAN_30100 | 2.00E-64  | 37.42331288  | RHPLAN_53850 | 8.00E-64  | 35.27670362  |
| RHPLAN_16850 | 6.00E-101 | 44.13580247  | RHPLAN_25890 | 3.00E-98  | 44.75308642  |
| RHPLAN_09560 | 2.00E-68  | 35.91331269  | RHPLAN_00980 | 5.00E-68  | 35.91331269  |
| RHPLAN_30100 | 9.00E-72  | 34.66257669  | RHPLAN_10710 | 5.00E-71  | 37.11656442  |
| RHPLAN_13810 | 3.00E-49  | 30.24691358  | RHPLAN_65460 | 3.00E-49  | 34.56790123  |
| RHPLAN_09560 | 2.00E-68  | 35.91331269  | RHPLAN_00980 | 5.00E-68  | 35.91331269  |
| RHPLAN_30090 | 9.00E-72  | 34.66257669  | RHPLAN_10710 | 5.00E-71  | 37.11656442  |
| RHPLAN_13810 | 3.00E-49  | 30.24691358  | RHPLAN_65460 | 3.00E-49  | 34.56790123  |
| RHPLAN_09560 | 6.00E-87  | 38.90577508  | RHPLAN_47590 | 8.00E-87  | 37.99392097  |
| RHPLAN_23520 | 7.00E-55  | 30.24691358  | RHPLAN_65460 | 3.00E-49  | 34.56790123  |
| RHPLAN_00600 | 2.00E-66  | 35.58282209  | RHPLAN_26010 | 3.00E-66  | 33.74233129  |
| RHPLAN_39920 | 1.00E-58  | 30.24691358  | RHPLAN_65460 | 3.00E-49  | 34.56790123  |
| RHPLAN_00600 | 7.00E-77  | 38.46153846  | RHPLAN_16890 | 3.00E-76  | 37.86922449  |
| RHPLAN_67150 | 8.00E-73  | 36.08815427  | RHPLAN_00980 | 5.00E-78  | 37.80487805  |
| RHPLAN_08400 | 5.00E-75  | 40.621118  | RHPLAN_00980 | 5.00E-78  | 37.80487805  |
| RHPLAN_08400 | 5.00E-75  | 40.621118  | RHPLAN_00980 | 5.00E-78  | 37.80487805  |
| RHPLAN_33880 | 6.00E-83  | 39.87915408  | RHPLAN_43730 | 4.00E-82  | 38.36858006  |
| RHPLAN_00600 | 3.00E-49  | 29.84615385  | RHPLAN_14980 | 9.00E-49  | 33.53846154  |
| RHPLAN_39000 | 8.00E-84  | 38.0239521  | RHPLAN_38620 | 2.00E-81  | 39.52095808  |
| RHPLAN_00980 | 5.00E-78  | 38.0239521  | RHPLAN_38620 | 2.00E-81  | 39.52095808  |
| RHPLAN_53850 | 6.00E-73  | 35.18518519  | RHPLAN_20870 | 2.00E-72  | 37.34567901  |
| RHPLAN_14980 | 5.00E-76  | 39.13043478  | RHPLAN_39000 | 3.00E-72  | 32.4099723  |
| RHPLAN_67150 | 8.00E-73  | 36.22754491  | RHPLAN_41870 | 2.00E-72  | 37.1257485  |
| RHPLAN_64510 | 8.00E-62  | 33.33333333  | RHPLAN_65150 | 9.00E-62  | 34.57943925  |
| RHPLAN_69040 | 9.00E-99  | 44.57831325  | RHPLAN_43970 | 1.00E-92  | 41.26506024  |
| RHPLAN_67150 | 4.00E-74  | 38.50931677  | RHPLAN_62490 | 7.00E-72  | 34.16149068  |
| RHPLAN_49470 | 1.00E-76  | 34.21052632  | RHPLAN_39000 | 3.00E-72  | 32.4099723  |
| RHPLAN_65670 | 2.00E-65  | 34.86238532  | RHPLAN_41870 | 2.00E-72  | 37.1257485  |
| RHPLAN_21570 | 1.00E-79  | 44.27244582  | RHPLAN_08870 | 8.00E-79  | 36.22291022  |
| RHPLAN_69040 | 4.00E-103 | 42.77108434  | RHPLAN_29590 | 3.00E-102 | 43.6746988  |
| RHPLAN_08870 | 6.00E-89  | 40.99378882  | RHPLAN_53850 | 3.00E-88  | 38.19875776  |
| RHPLAN_17980 | 6.00E-81  | 39.51367781  | RHPLAN_67770 | 7.00E-81  | 37.6899696  |
| RHPLAN_21990 | 1.00E-81  | 37.3088685  | RHPLAN_63280 | 2.00E-81  | 39.14373089  |
| RHPLAN_17980 | 7.00E-80  | 38.08049536  | RHPLAN_47590 | 9.00E-80  | 38.39092288  |
| RHPLAN_60930 | 4.00E-65  | 33.84146341  | RHPLAN_40150 | 7.00E-65  | 33.23170732  |
| RHPLAN_08380 | 2.00E-79  | 37.01492537  | RHPLAN_54630 | 5.00E-79  | 36.11940299  |
| Code          | Value 1   | Value 2    | Code          | Value 1   | Value 2    |
|--------------|-----------|------------|--------------|-----------|-----------|
| RHPLAN_21990| 3.00E-91  | 37.83783784| RHPLAN_64850 | 1.00E-88  | 39.63963964 |
| RHPLAN_60790| 2.00E-81  | 40.37267081| RHPLAN_27530 | 1.00E-80  | 39.13043478 |
| RHPLAN_53850| 3.00E-67  | 33.43465046| RHPLAN_67770 | 1.00E-80  | 35.56231003 |
| RHPLAN_25260| 8.00E-72  | 33.2361516 | RHPLAN_65150 | 8.00E-70  | 33.81924198 |
| RHPLAN_43730| 3.00E-81  | 38.94080997| RHPLAN_18490 | 4.00E-81  | 38.94080997 |
| RHPLAN_08360| 3.00E-85  | 42.94670846| RHPLAN_27530 | 3.00E-85  | 42.00626959 |
| RHPLAN_39920| 6.00E-70  | 33.43465046| RHPLAN_67770 | 1.00E-66  | 35.56231003 |
| RHPLAN_01890| 3.00E-87  | 37.46223565| RHPLAN_47960 | 4.00E-81  | 38.94080997 |
| RHPLAN_16870| 4.00E-82  | 37.8601824 | RHPLAN_62680 | 6.00E-82  | 38.29787234 |
| RHPLAN_17980| 4.00E-61  | 33.02752294| RHPLAN_44320 | 1.00E-60  | 32.41590214 |
| RHPLAN_32270| 1.00E-66  | 36.41975309| RHPLAN_37970 | 3.00E-65  | 32.71604938 |
| RHPLAN_01620| 8.00E-65  | 34.93975904| RHPLAN_21990 | 9.00E-65  | 33.73493976 |
| RHPLAN_61720| 8.00E-78  | 39.13043478| RHPLAN_34540 | 1.00E-67  | 37.77089783 |
| RHPLAN_54070| 1.00E-78  | 37.65432099| RHPLAN_01490 | 4.00E-68  | 34.25925926 |
| RHPLAN_27740| 2.00E-68  | 38.88888889| RHPLAN_01620 | 5.00E-94  | 40.11976048 |
| RHPLAN_61440| 3.00E-66  | 33.92857143| RHPLAN_30090 | 9.00E-86  | 38.83161512 |
| RHPLAN_64510| 7.00E-71  | 36.96969697| RHPLAN_11700 | 2.00E-93  | 43.33333333 |
| RHPLAN_01620| 8.00E-65  | 34.93975904| RHPLAN_21990 | 9.00E-65  | 33.73493976 |
| RHPLAN_16830| 5.00E-94  | 40.11976048| RHPLAN_13310 | 4.00E-79  | 38.67069486 |
| RHPLAN_06330| 9.00E-88  | 39.56386293| RHPLAN_08370 | 2.00E-87  | 43.30218069 |
| RHPLAN_41870| 1.00E-67  | 37.77089783| RHPLAN_21570 | 1.00E-66  | 41.17647059 |
| RHPLAN_23520| 1.00E-77  | 39.09090909| RHPLAN_49470 | 9.00E-83  | 40.18691589 |
| RHPLAN_61980| 2.00E-75  | 36.76012461| RHPLAN_63280 | 4.00E-75  | 38.31775701 |
| RHPLAN_65670| 6.00E-72  | 34.04907974| RHPLAN_13310 | 4.00E-86  | 43.11926606 |
| RHPLAN_33880| 1.00E-86  | 43.11926606| RHPLAN_13310 | 1.00E-85  | 41.89602446 |
| RHPLAN_64470| 9.00E-107 | 44.57478006| RHPLAN_08380 | 1.00E-82  | 39.52095808 |
| RHPLAN_53850| 6.00E-75  | 36.61538462| RHPLAN_23510 | 1.00E-64  | 35.54216867 |
| RHPLAN_54630| 1.00E-79  | 38.34355828| RHPLAN_34980 | 5.00E-70  | 34.44108761 |
| RHPLAN_13310| 4.00E-79  | 38.67069486| RHPLAN_05720 | 1.00E-69  | 34.74320242 |
| RHPLAN_21990| 9.00E-70  | 34.44108761| RHPLAN_05720 | 1.00E-82  | 39.52095808 |
| RHPLAN_34980| 4.00E-84  | 40.11976048| RHPLAN_08380 | 1.00E-82  | 39.52095808 |
| RHPLAN_23510| 1.00E-64  | 35.24096386| RHPLAN_27760 | 2.00E-64  | 35.54216867 |
| RHPLAN_53850| 5.00E-82  | 41.26506024| RHPLAN_34980 | 5.00E-82  | 40.96385542 |
| RHPLAN_63500| 4.00E-58  | 29.63988992| RHPLAN_54630 | 1.00E-70  | 35.71428571 |
| RHPLAN_51520| 1.00E-70  | 36.04284472| RHPLAN_34980 | 3.00E-70  | 33.73860182 |
| RHPLAN_05720| 3.00E-70  | 33.73860182| RHPLAN_08370 | 3.00E-70  | 33.73860182 |
| RHPLAN_49400| 1.00E-79  | 38.83161512| RHPLAN_08370 | 6.00E-72  | 37.20238095 |
| RHPLAN_25260| 1.00E-79  | 38.83161512| RHPLAN_08370 | 6.00E-72  | 37.20238095 |
| Plan   | Value | Name         | Value   |
|--------|-------|--------------|---------|
| RHPLAN_14980 | 4.00E-83 | 4.017857143 | RHPLAN_39920 | 8.00E-83 | 37.5 |
| RHPLAN_01490 | 3.00E-73 | 35.9375 | RHPLAN_10530 | 1.00E-72 | 38.125 |
| RHPLAN_61980 | 7.00E-65 | 31.15727003 | RHPLAN_65150 | 1.00E-64 | 34.5454555 |
| RHPLAN_34240 | 5.00E-69 | 36.06060606 | RHPLAN_63280 | 5.00E-69 | 34.5454555 |
| RHPLAN_10350 | 1.00E-86 | 39.62848297 | RHPLAN_25000 | 1.00E-85 | 43.3465325 |
| RHPLAN_10320 | 3.00E-61 | 34.32835821 | RHPLAN_08370 | 4.00E-61 | 34.02985075 |
| RHPLAN_27760 | 7.00E-67 | 35.58282209 | RHPLAN_39920 | 2.00E-65 | 33.4358282 |
| RHPLAN_62490 | 5.00E-69 | 34.7826087 | RHPLAN_38620 | 2.00E-75 | 36.52173913 |
| RHPLAN_10350 | 1.00E-86 | 39.62848297 | RHPLAN_25000 | 1.00E-85 | 43.3465325 |
| RHPLAN_10460 | 1.00E-83 | 40.24767802 | RHPLAN_10460 | 3.00E-87 | 37.9204893 |
| RHPLAN_49080 | 2.00E-68 | 34.83483483 | RHPLAN_25890 | 1.00E-83 | 43.9628483 |
| RHPLAN_05720 | 3.00E-89 | 38.39009288 | RHPLAN_43730 | 5.00E-89 | 42.41486068 |
| RHPLAN_00600 | 7.00E-71 | 37.69470405 | RHPLAN_47590 | 1.00E-87 | 41.30434783 |
| RHPLAN_49080 | 2.00E-68 | 34.83483483 | RHPLAN_60930 | 2.00E-88 | 41.79566563 |
| RHPLAN_59580 | 1.00E-77 | 38.6530675 | RHPLAN_34980 | 4.00E-77 | 36.95652174 |
| RHPLAN_34260 | 1.00E-69 | 33.74613003 | RHPLAN_34980 | 7.00E-68 | 36.95652174 |
| RHPLAN_09560 | 6.00E-89 | 41.71779141 | RHPLAN_60930 | 2.00E-88 | 41.79566563 |
| RHPLAN_56300 | 1.00E-73 | 35.60371517 | RHPLAN_66640 | 4.00E-70 | 38.15384615 |
| RHPLAN_60850 | 2.00E-80 | 41.23076923 | RHPLAN_34980 | 6.00E-83 | 39.19753086 |
| RHPLAN_28880 | 9.00E-53 | 29.72136223 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_25260 | 1.00E-73 | 35.60371517 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_49470 | 4.00E-79 | 33.74613003 | RHPLAN_60930 | 2.00E-88 | 41.79566563 |
| RHPLAN_02340 | 2.00E-70 | 35.60371517 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_05730 | 5.00E-66 | 35.7771261 | RHPLAN_47590 | 6.00E-67 | 36.33540373 |
| RHPLAN_05720 | 5.00E-67 | 36.02484472 | RHPLAN_47590 | 6.00E-67 | 36.33540373 |
| RHPLAN_13310 | 5.00E-68 | 39.7515528 | RHPLAN_34980 | 7.00E-68 | 36.95652174 |
| RHPLAN_60850 | 1.00E-73 | 35.64261538 | RHPLAN_19330 | 7.00E-73 | 34.25076453 |
| RHPLAN_28880 | 9.00E-53 | 29.72136223 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_25260 | 1.00E-73 | 35.60371517 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_49470 | 4.00E-79 | 33.74613003 | RHPLAN_60930 | 2.00E-88 | 41.79566563 |
| RHPLAN_02340 | 2.00E-70 | 35.60371517 | RHPLAN_67770 | 1.00E-73 | 34.25076453 |
| RHPLAN_05730 | 5.00E-66 | 35.7771261 | RHPLAN_47590 | 6.00E-67 | 36.33540373 |
| RHPLAN_05720 | 5.00E-67 | 36.02484472 | RHPLAN_47590 | 6.00E-67 | 36.33540373 |
| RHPLAN_13310 | 2.00E-70 | 37.6146789 | RHPLAN_34260 | 2.00E-70 | 35.4740612 |
| RHPLAN_00600 | 1.00E-66 | 35.54216867 | RHPLAN_51440 | 5.00E-71 | 35.3125 |
| RHPLAN_68890 | 2.00E-62 | 35.9375 | RHPLAN_01890 | 1.00E-89 | 42.41486068 |
| RHPLAN_40150 | 1.00E-74 | 35.82554517 | RHPLAN_10530 | 1.00E-72 | 38.125 |
| RHPLAN_06300 | 4.00E-83 | 35.82554517 | RHPLAN_27760 | 1.00E-83 | 38.125 |
| RHPLAN_55350 | 2.00E-80 | 36.111111111 | RHPLAN_02340 | 3.00E-80 | 35.625 |
| RHPLAN_39920 | 3.00E-74 | 35.82554517 | RHPLAN_27760 | 1.00E-83 | 38.125 |
| RHPLAN_06330 | 4.00E-83 | 35.82554517 | RHPLAN_27760 | 1.00E-83 | 38.125 |
| RHPLAN_49480 | 1.00E-81 | 35.82554517 | RHPLAN_02340 | 3.00E-80 | 35.625 |
| RHPLAN_27760 | 5.00E-83 | 35.82554517 | RHPLAN_02340 | 3.00E-80 | 35.625 |
| RHPLAN_41140 | 1.00E-81 | 35.82554517 | RHPLAN_02340 | 3.00E-80 | 35.625 |
| RHPLAN_47960 | 3.00E-82 | 35.82554517 | RHPLAN_02340 | 3.00E-80 | 35.625 |
| RHPLAN_33880 | 1.00E-64 | 37.65432099 | RHPLAN_53850 | 9.00E-64 | 30.24691358 |
| RHPLAN_27530 | 9.00E-87 | 41.15853659 | RHPLAN_10320 | 2.00E-75 | 36.17021277 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| RHPLAN_05720 | 4.00E-72 | 33.23353293 | RHPLAN_14980 | 5.00E-80 | 37.75811209 |
| RHPLAN_39790 | 1.00E-70 | 41.9820059 | RHPLAN_27530 | 9.00E-87 | 37.05188602 |
| RHPLAN_14980 | 2.00E-76 | 37.99392097 | RHPLAN_65670 | 3.00E-70 | 35.62874252 |
| Code       | Value       | Percent  | Code       | Value       | Percent  |
|------------|-------------|----------|------------|-------------|----------|
| RHPLAN_53850 | 2.00E-64  | 32.91925466 | RHPLAN_26010 | 1.00E-63  | 37.26708075 |
| RHPLAN_09220 | 8.00E-69   | 38.125    | RHPLAN_39920 | 9.00E-69   | 35.3125   |
| RHPLAN_09560 | 2.00E-75   | 38.08049536 | RHPLAN_51420 | 2.00E-75   | 35.8662614 |
| RHPLAN_63280 | 2.00E-69   | 35.69230769 | RHPLAN_17990 | 9.00E-72   | 36.61538462 |
| RHPLAN_38600 | 2.00E-54   | 35.16819572 | RHPLAN_19180 | 6.00E-67   | 34.82142857 |
| RHPLAN_30090 | 1.00E-72   | 35.69230769 | RHPLAN_08370 | 1.00E-60   | 33.74233129 |
| RHPLAN_06330 | 4.00E-69   | 36.92307692 | RHPLAN_23520 | 9.00E-66   | 34.96932515 |
| RHPLAN_58410 | 4.00E-46   | 35.07692308 | RHPLAN_09560 | 8.00E-60   | 33.84615385 |
| RHPLAN_63280 | 5.00E-63   | 35.25301205 | RHPLAN_68390 | 1.00E-63   | 37.04819277 |
| RHPLAN_67770 | 5.00E-63   | 35.25301205 | RHPLAN_19180 | 5.00E-66   | 34.96932515 |
| RHPLAN_51420 | 2.00E-69   | 36.92307692 | RHPLAN_27530 | 5.00E-67   | 34.82142857 |
| RHPLAN_08210 | 3.00E-65   | 33.33333333 | RHPLAN_05730 | 2.00E-49   | 34.17721519 |
| RHPLAN_60930 | 5.00E-78   | 36.61538462 | RHPLAN_68390 | 5.00E-78   | 34.17721519 |
| RHPLAN_55530 | 2.00E-65   | 33.33333333 | RHPLAN_05730 | 2.00E-49   | 34.17721519 |
| RHPLAN_63280 | 8.00E-64   | 38.25031205 | RHPLAN_68390 | 5.00E-65   | 34.44108761 |
| RHPLAN_25260 | 2.00E-72   | 34.54545455 | RHPLAN_48210 | 2.00E-60   | 34.02366864 |
| RHPLAN_19180 | 3.00E-59   | 34.53453453 | RHPLAN_09560 | 3.00E-61   | 33.84615385 |
| RHPLAN_32540 | 2.00E-62   | 33.98514241 | RHPLAN_11410 | 2.00E-65   | 35.34743202 |
| RHPLAN_05740 | 7.00E-65   | 33.33333333 | RHPLAN_27200 | 2.00E-49   | 34.17721519 |
| RHPLAN_66640 | 3.00E-70   | 36.22754491 | RHPLAN_68390 | 5.00E-78   | 34.17721519 |
| RHPLAN_08210 | 2.00E-67   | 34.25076453 | RHPLAN_27530 | 2.00E-65   | 34.44108761 |
| RHPLAN_16450 | 3.00E-58   | 32.31707317 | RHPLAN_34540 | 2.00E-60   | 34.02366864 |
| RHPLAN_21460 | 4.00E-62   | 36.13707165 | RHPLAN_02340 | 3.00E-61   | 34.26791277 |
| RHPLAN_51520 | 4.00E-68   | 32.58426966 | RHPLAN_58410 | 2.00E-62   | 34.52380952 |
| RHPLAN_33770 | 4.00E-58   | 34.75609756 | RHPLAN_21460 | 2.00E-64   | 33.91812866 |
| RHPLAN_60770 | 3.00E-62   | 33.12883436 | RHPLAN_32940 | 1.00E-61   | 34.04907975 |
| RHPLAN_60700 | 3.00E-67   | 34.47204969 | RHPLAN_05730 | 1.00E-66   | 38.50931677 |
| RHPLAN_33880 | 4.00E-81   | 36.02150538 | RHPLAN_08370 | 5.00E-80   | 31.72043011 |
| RHPLAN_70120 | 5.00E-70   | 35.54216867 | RHPLAN_39920 | 1.00E-69   | 37.04819277 |
| RHPLAN_33770 | 4.00E-45   | 32.39875389 | RHPLAN_51520 | 1.00E-43   | 31.46417445 |
| RHPLAN_13310 | 8.00E-52   | 32.62195122 | RHPLAN_16380 | 2.00E-51   | 30.48780488 |
| RHPLAN_00600  | 3.00E-61  | 32.21884498 | RHPLAN_47240  | 7.00E-61  | 30.39513678 |
| RHPLAN_08380  | 1.00E-59  | 33.64197531 | RHPLAN_16890  | 2.00E-59  | 34.25925926 |
| RHPLAN_34260  | 1.00E-64  | 36         | RHPLAN_30090  | 5.00E-64  | 35.38461538 |
| RHPLAN_49470  | 4.00E-56  | 34.93975904 | RHPLAN_18390  | 6.00E-56  | 30.42168675 |
| RHPLAN_51320  | 3.00E-51  | 32.62195122 | RHPLAN_65150  | 4.00E-51  | 33.23170732 |
| RHPLAN_62300  | 6.00E-68  | 30.40201005 | RHPLAN_41140  | 1.00E-67  | 31.65829146 |
| RHPLAN_00600  | 1.00E-70  | 33.33333333 | RHPLAN_41140  | 2.00E-70  | 34.51327434 |
| RHPLAN_20870  | 3.00E-57  | 33.02469136 | RHPLAN_01890  | 4.00E-57  | 31.17283951 |
| RHPLAN_30090  | 5.00E-66  | 34.86238532 | RHPLAN_69350  | 5.00E-66  | 36.69724771 |
| RHPLAN_68890  | 2.00E-57  | 31.79012346 | RHPLAN_01490  | 5.00E-57  | 31.17283951 |
| RHPLAN_13610  | 5.00E-47  | 29.43037975 | RHPLAN_27760  | 5.00E-47  | 31.96202532 |
| RHPLAN_19180  | 2.00E-53  | 32.41590214 | RHPLAN_27850  | 2.00E-53  | 32.11009174 |
| RHPLAN_55530  | 8.00E-54  | 28.35365854 | RHPLAN_61440  | 8.00E-53  | 31.70731707 |
| RHPLAN_63280  | 6.00E-63  | 27.59562842 | RHPLAN_34240  | 4.00E-62  | 31.42076503 |
| RHPLAN_60930  | 1.00E-21  | 24.3902439  | RHPLAN_16380  | 5.00E-21  | 23.7804878 |
| RHPLAN_34540  | 9.00E-30  | 26.68711656 | RHPLAN_60700  | 2.00E-29  | 25.76687117 |
| RHPLAN_68890  | 4.00E-15  | 26.82215743 | RHPLAN_51480  | 5.00E-15  | 21.28279883 |
| RHPLAN_51560  | 2.00E-42  | 27.76025237 | RHPLAN_61440  | 2.00E-42  | 28.07570978 |
| RHPLAN_14980  | 1.00E-29  | 30.05952381 | RHPLAN_59730  | 2.00E-29  | 25.5952381 |
| RHPLAN_11410  | 3.00E-28  | 22.25519288 | RHPLAN_05730  | 4.00E-28  | 24.92581602 |