Phage anti-defence database

Phage anti-defence database

版本一

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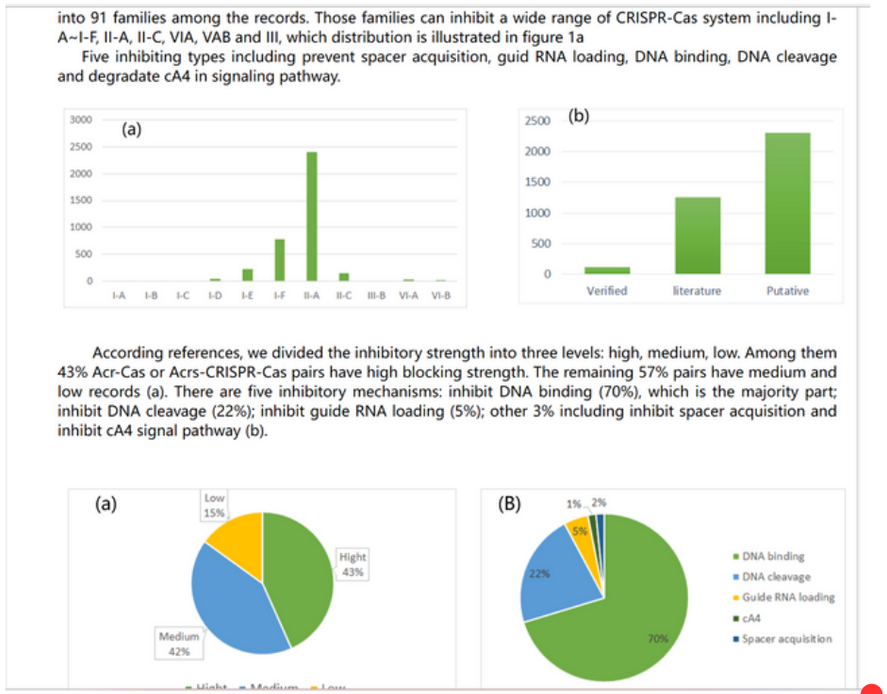
Welcome to Phage anti-defence database


into 91 families among the records. Those families can inhibit a wide range of CRISPR-Cas system including I-A~I-F, II-A, II-C, VIA, VAB and III, which distribution is illustrated in figure 1a

Five inhibiting types including prevent spacer acquisition, guid RNA loading, DNA binding, DNA cleavage and degradate cA4 in signaling pathway.

According references, we divided the inhibitory strength into three levels: high, medium, low. Among them 43% Acr-Cas or Acrs-CRISPR-Cas pairs have high blocking strength. The remaining 57% pairs have medium and low records (a). There are five inhibitory mechanisms: inhibit DNA binding (70%), which is the majority part; inhibit DNA cleavage (22%); inhibit guide RNA loading (5%); other 3% including inhibit spacer acquisition and inhibit cA4 signal pathway (b).

- Anti-CRISPR
- Anti-RM
- Anti-Abi
- Anti-Adsorption inhibition
- Other

设置链接，点击可以进入各自的防御系统，展示实验和预测的各种信息

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System family	ID	protein	Inhibited Type	Phage	Host	Length	reference(s)
Anti-Preventing adsorption	APA0001						文章链接
Anti-Restriction–modification	ARM0001		RM Ⅰ				
Anti-CRISPR/Phage-encoded CRISPR							
Anti-Abi							
Phage nucleus-like compartment							

做一个链接，点进去可以看到这个蛋白有关的信息，例如表格里列举的基础信息、蛋白序列、在基因组上位置的可视化以及二级结构等等

Detailed Information

Basic Information (Experimental Results)

Top

AcrHub ID	Acr00001
Name	-
Gene Name	-
Family	AcrIB
Inhibited CRISPR Type(s)	I-B
Inhibited Stage	-
Molecular Mechanism	-
Targeted Protein	-
Cellular Context	Leptotrichia buccalis DSM 1135
Source Of Species	*Leptotrichia buccalis DSM 1135*
Function	The protein inhibits type I-B CRISPR-Cas in Leptotrichia buccalis.
Sequence	LESKNLRKLLNEYEEIDINEMLKNFRSIKNSGTKNDIEIFLHEKAIKFEKSSISSTYVVFSEDNEILGYFTIANRSLVIPKENFGILSKTQQK KLGNSAAILKNGDLMTSSFLLGQLGKNYSDDIENLITGRELLTFAYDLFLKIKELINVKYIWLECQNEPKLISFYQNFGFKMLESLTSEEGL KVMIMELK
Length	193 amino acids
UniProt ID	-
PubMed ID	32348779

Protein Structure (Experimental Results)

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System family	ID	protein	Inhibited Type	Phage	Host	Length	reference(s)
Anti-Preventing adsorption	APA0005						文章链接
Anti-Restriction–modification	ARM0006		RM Ⅰ				
Anti-CRISPR/Phage-encoded CRISPR							
Anti-Abi							
Phage nucleus-like compartment							
Anti-superinfection exclusion(SE)							
Anti-Thoeris							
Anti-quorum sensing(QS)							
Anti-CBASS							
Anti-Pyscar							

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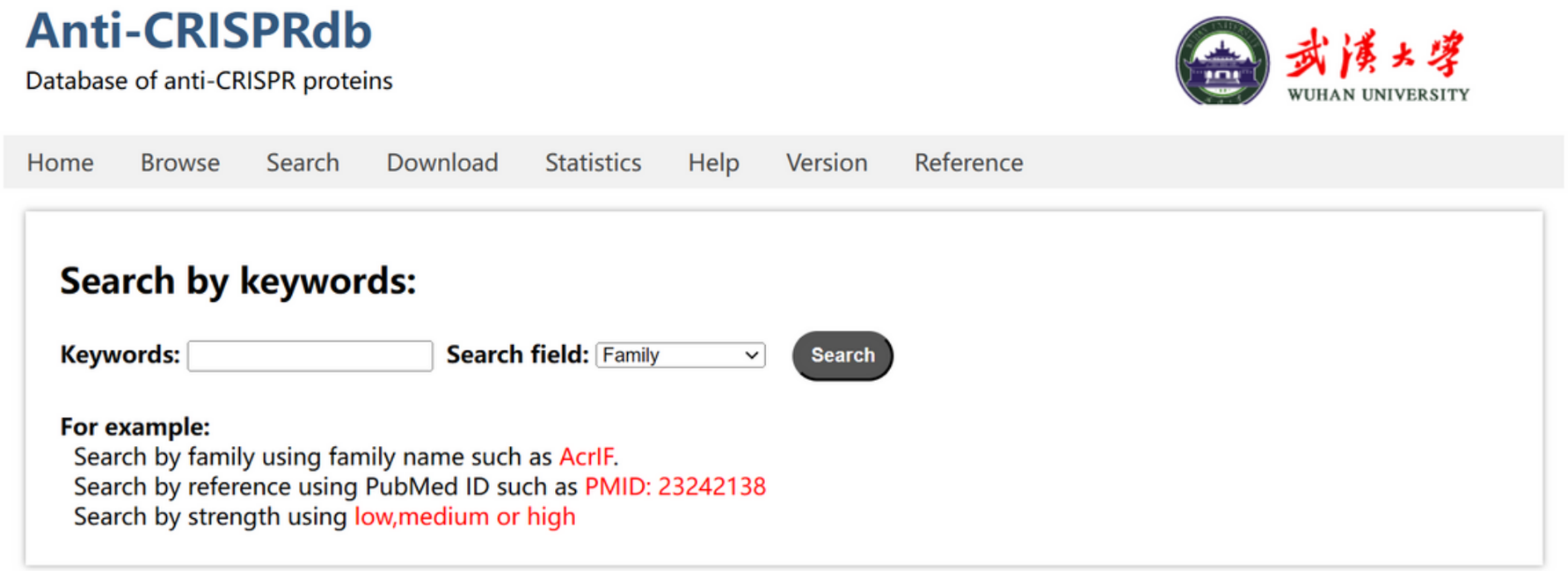

高级搜索，通过限定Verified/Predicted anti-defense proteins页面中列举的不同类别的关键词，搜索噬菌体反防御系统的相关信息

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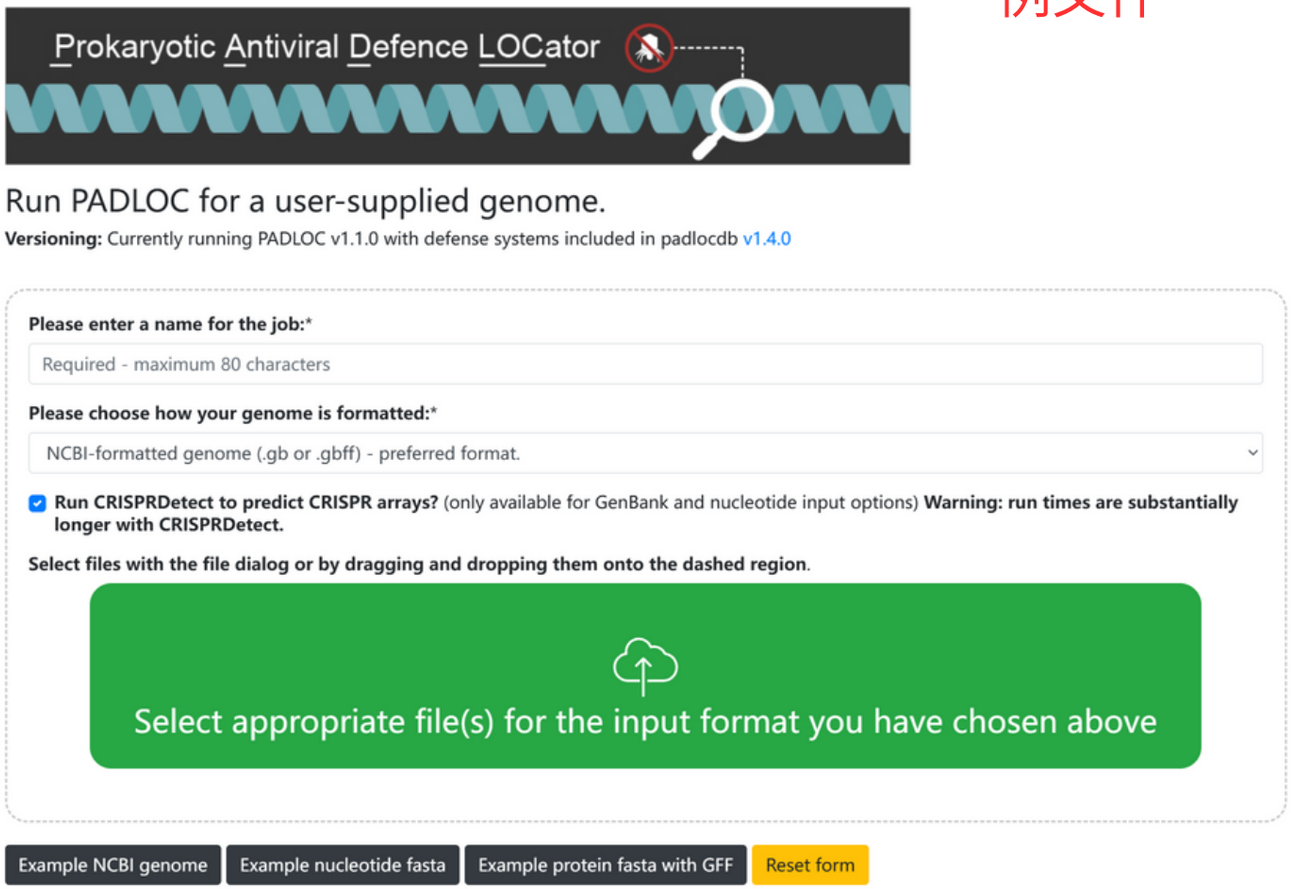
1、输入蛋白序列或者fasta格式的文件；2、填写邮箱，预测结果出来后发至邮箱；3、在下方列出示例文件



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AcrHub

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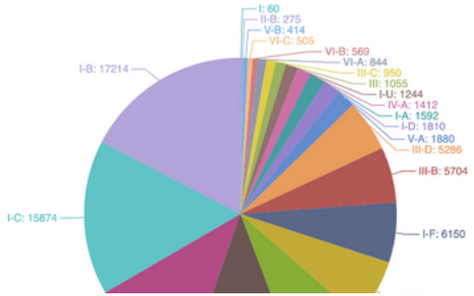
  - 4.1 From Prediction To Relationship Analysis
  - 4.2 From Results To Known Acrs

AcrHub ID	Family	Inhibited CRISPR Type	Inhibited Stage	Targeted Protein	Molecular Mechanism	Cellular Context	Source Of Species	Length	PDB	PubMed ID
Acr00308	AcrVA1	V-A	DNA binding	Cas12a	Trigger cleavage of the target-recognition sequence of the Cas12a-bound guide RNA to inactivate the Cas12a complex (block DNA binding)	Pseudomonas aeruginosa PAO1; Human U2-OS-EGFP cells; Moraxella bovoculi strain 58069; Lachnospiraceae bacterium ND2006; Acidaminococcus sp. BV3L6	Moraxella bovoculi	170	-	30190308 30190307
Acr00309	AcrVA1	V-A	DNA binding	Cas12a	Trigger cleavage of the target-recognition sequence of the Cas12a-bound guide RNA to inactivate the Cas12a complex (block DNA binding)	-	Moraxella bovoculi	174	-	31155345
Acr00310	AcrVA1	V-A	DNA binding	Cas12a	Trigger cleavage of the target-recognition sequence of the Cas12a-bound guide RNA to inactivate the Cas12a complex (block DNA binding)	-	Moraxella bovoculi	165	-	31155345
Acr00311	AcrVA2	V-A	-	-	-	Pseudomonas aeruginosa PAO1	Moraxella bovoculi	322	-	30190308
Acr00312	AcrVA3	V-A, I-C	-	-	-	-	Moraxella bovoculi	168	-	30190308
Acr00313	AcrVA4	V-A	DNA binding	Cas12a	Recognize the Cas12a pre-crRNA processing	HEK293T human embryonic kidney cells; Moraxella bovoculi strain 58069; Lachnospiraceae bacterium ND2006	Moraxella bovoculi	234	-	30190307 31467167 31155345 31397669
Acr00314	AcrVA5	V-A	DNA binding	Cas12a	Function as an acetyltransferase to modify Cas12a	HEK293T human embryonic kidney cells; Moraxella bovoculi strain 58069; Lachnospiraceae bacterium ND2006	Moraxella bovoculi	92	-	30190307 30936526

Showing 1 to 7 of 7 rows

- 1.3.2 Distribution of predicted Acrs according to their inhibited CRISPR types



数据库的用法介绍