Как написать контрольную

1. Откройте файл CW-1.docx по ссылке   
   Один вариант – одна страница. Задание написано на странице варианта.
2. Выберите любой вариант. Скопируйте страницу к себе в файл
3. После выполнения, ответ внесите в форму на этой странице, откройте результат на своём сайте и запишитесь в очередь на проверку
4. Выполняете задание любым доступным для вас методом – программирование, калькулятор на телефоне, на листочке бумаги, в электронной таблице.
5. Укажите какой метод использовали и этапы вычисления

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

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**Выравнивание 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

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**Выравнивание 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Выравнивание 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Выравнивание 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Выравнивание 3**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | G | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 4**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | G | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |
| G | G | T | T | G | C | G | C | A | A | A | C | G | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | G | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 5**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | A | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | A | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 6**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | A | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
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3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 7**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | A | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 8**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | A | A | A | C | G | T | T | T | G | C | T | T | T | C | C |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | T | A |
| C | A | A | A | C | G | G | T | T | T | C | G | T | C | A | G |
| C | A | A | C | C | G | T | T | T | T | C | C | T | T | G | C |
| C | A | A | A | C | G | T | G | T | G | C | G | T | C | T | G |
| C | A | A | T | C | G | G | T | T | A | C | C | T | T | G | A |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | A | C |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | A | A | A | C | G | T | T | T | T | C | T | T | T | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 9**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | A | A | A | C | G | T | T | T | T | C | T | T | T | T | T |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | T | A |
| C | A | A | A | C | G | G | T | T | T | C | G | T | C | A | G |
| C | A | A | C | C | G | T | T | T | T | C | C | T | T | G | C |
| C | A | A | A | C | G | T | G | T | G | C | G | T | C | T | G |
| C | A | A | T | C | G | G | T | T | A | C | C | T | T | G | A |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | A | C |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | A | A | A | C | G | T | T | T | G | C | T | T | T | C | C |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 10**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | A | A | A | C | G | T | T | T | G | C | T | T | T | C | C |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | T | A |
| C | A | A | A | C | G | G | T | T | T | C | G | T | C | A | G |
| C | A | A | C | C | G | T | T | T | T | C | C | T | T | G | C |
| C | A | A | A | C | G | T | G | T | G | C | G | T | C | T | G |
| C | A | A | T | C | G | G | T | T | A | C | C | T | T | G | A |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | A | C |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | A | A | A | C | G | T | T | T | G | C | T | T | T | C | C |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 11**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | A | A | A | C | G | T | T | T | T | C | T | T | T | T | T |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | T | A |
| C | A | A | A | C | G | G | T | T | T | C | G | T | C | A | G |
| C | A | A | C | C | G | T | T | T | T | C | C | T | T | G | C |
| C | A | A | A | C | G | T | G | T | G | C | G | T | C | T | G |
| C | A | A | T | C | G | G | T | T | A | C | C | T | T | G | A |
| C | A | A | A | C | G | T | T | T | T | C | G | T | T | A | C |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | A | A | A | C | G | T | T | T | G | C | T | T | T | C | C |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 12**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | C | A | A | A | C | G | T | T | T | T | C | T | T | T | T |
| G | C | A | A | A | C | G | T | T | T | T | C | G | T | T | T |
| G | C | A | A | A | C | G | G | T | T | T | C | G | T | C | A |
| G | C | A | A | C | C | G | T | T | T | T | C | C | T | T | G |
| G | C | A | A | A | C | G | T | G | T | G | C | G | T | C | T |
| G | C | A | A | T | C | G | G | T | T | A | C | C | T | T | G |
| G | C | A | A | A | C | G | T | T | T | T | C | G | T | T | A |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | C | A | A | A | C | G | T | T | T | G | C | T | T | T | C |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 13**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | A | A | A | C | G | T | T | T | T | C | T | T | T | T |
| C | C | A | A | A | C | G | T | T | T | T | C | G | T | T | T |
| C | C | A | A | A | C | G | G | T | T | T | C | G | T | C | A |
| C | C | A | A | C | C | G | T | T | T | T | C | C | T | T | G |
| C | C | A | A | A | C | G | T | G | T | G | C | G | T | C | T |
| C | C | A | A | T | C | G | G | T | T | A | C | C | T | T | G |
| C | C | A | A | A | C | G | T | T | T | T | C | G | T | T | A |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | C | A | A | A | C | G | T | T | T | G | C | T | T | T | C |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
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4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 14**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | T | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | A | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 15**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A | C | G | C | A | A | A | C | G | T | T | T | T | C | T | T |
| A | C | G | C | A | A | A | C | G | T | T | T | T | C | G | T |
| A | C | G | C | A | A | A | C | G | G | T | T | T | C | G | T |
| A | C | G | C | A | A | C | C | G | T | T | T | T | C | C | T |
| A | C | G | C | A | A | A | C | G | T | G | T | G | C | G | T |
| A | C | G | C | A | A | T | C | G | G | T | T | A | C | C | T |
| G | C | G | C | A | A | A | C | G | T | T | T | T | C | G | T |
| T | C | G | C | A | A | A | C | G | T | T | T | G | C | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | T | C | G | C | A | A | A | C | G | T | T | T | G | C | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 16**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | T | cT | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | C | T | A | C | G | C | A | A | A | C | G | T | C | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 17**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| C | C | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | C | G | C | A | A | A | C | G | T | c | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 18**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | A | T | A | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | G | A | C | G | T | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | G | T | A | C | G | C | A | A | A | C | G | T | T | T | T |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
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4. Постройте матрицу PWM для данного выравнивания
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**Выравнивание 19**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| C | A | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
| T | C | C | A | C | G | C | T | T | T | C | G | G | T | T | T |
| G | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | T | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | G | T | C | T | T | T | T | A | A | A | C | G | T | T | T | G |

Фамилия\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ имя\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. (b) = псевдоотсчёт для буквы b.

1. Напишите консенсус (Под каждой колонкой самую частую букву БОЛЬШОЙ, если такая не одна любую из них маленькой)
2. Напишите паттерн используя таблицу “ Ambiguous nucleotide codes”
3. Напишите тот же паттерн на комплементарной цепи
4. Постройте матрицу PWM для данного выравнивания
5. Вычислите вес W данной последовательности относительно полученной матрицы PWM

**Выравнивание 20**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| G | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |
| T | C | C | A | C | G | C | A | A | A | C | G | G | T | T | T |
| C | C | C | A | C | G | C | T | A | C | C | G | T | T | T | T |
| G | A | AT | A | C | G | C | A | A | A | C | G | T | G | T | G |
| C | C | G | A | C | G | C | A | A | T | C | G | G | T | T | A |
| G | T | T | G | C | G | C | A | A | A | C | G | T | T | T | T |
| G | G | T | T | G | C | G | C | A | A | A | C | G | T | T | T |

Число букв по столбцам

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **T** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **G** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **C** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **consensus** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **complement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Матрица PWM **и в в**ес последовательности относительно PWM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | p(b) | (b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= |  | | C | T | C | T | C | G | C | A | A | A | C | G | T | T | T | G |