Фамилия\_\_имя\_ Звонцов Олег

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Дано выравнивание. GC генома равен 0.6. p(b) – частота буквы b. ε(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** | **0** | 2 | 0 | 6 |  |  |  | 6 | 7 | 5 |  |  |  |  |  | 1 |
| **T** | **1** | 1 | 2 |  |  |  |  | 1 |  | 1 |  |  | 5 | 6 | 7 | 5 |
| **G** | **3** | 0 | 1 | 1 |  | 7 |  |  |  |  |  | 7 | 2 | 1 |  | 1 |
| **C** | **3** | 4 | 4 |  | 7 |  | 7 |  |  | 1 | 7 |  |  |  |  |  |
| **consensus** | **C** | C | C | A | C | G | C | A | A | A | C | G | T | T | T | T |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **pattern** | **B** | Y | B | R | C | G | C | W | A | H | C | G | K | K | T | D |
| **complement** | **V** | R | V | Y | G | C | G | W | T | D | G | C | M | M | A | H |

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

|  | p(b) | ε(b) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | 0.2 | 1 | -1.14 | 0.51 | -1.14 | 1.51 | -1.14 | -1.14 | -1.14 | 1.51 | 1.51 | 1.67 | 0.51 | -1.14 | -1.14 | -1.14 | -1.14 | -0.14 |
| T | 0.2 | 1 | -0.14 | -0.14 | 0.28 | -1.14 | -1.14 | -1.14 | -1.14 | -1.14 | -0.14 | -1.14 | -1.14 | -1.14 | -1.14 | 1.51 | 1.51 | 1.51 |
| G | 0.3 | 1 | 0.28 | -1.14 | -0.52 | -0.52 | -1.14 | 1.51 | -1.14 | -1.14 | -1.14 | -1.14 | -1.14 | 1.51 | 0.51 | -0.14 | -0.52 | -1.14 |
| C | 0.3 | 1 | 0.28 | 0.51 | 0.51 | -1.14 | 1.51 | -1.14 | 1.51 | -1.14 | -1.14 | -1.14 | 0.28 | -1.14 | -1.14 | -1.14 | -1.14 | -1.14 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W= | 4.54 | | G | T | C | T | C | G | C | A | A | A | C | G | T | c | T | G |