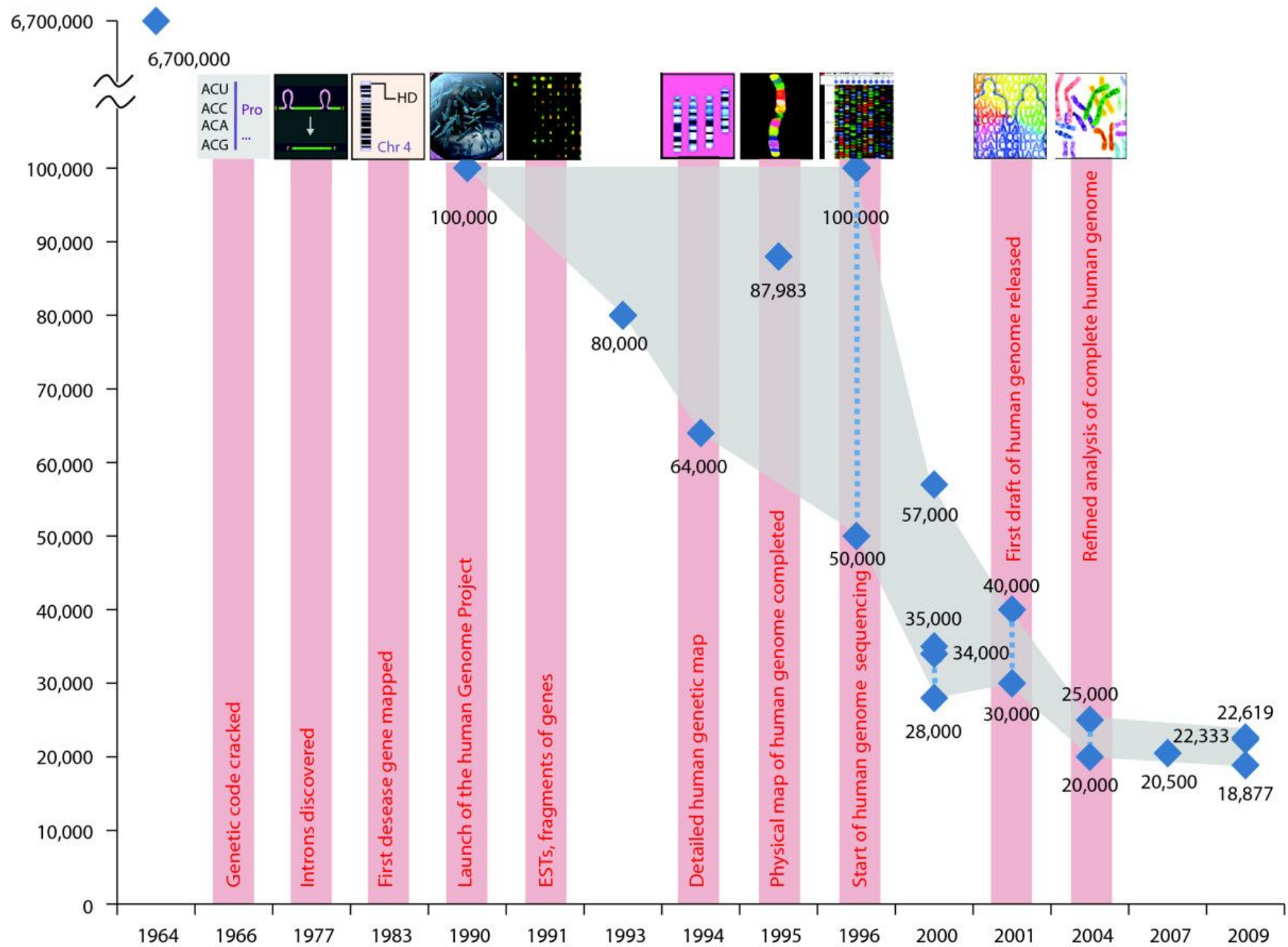




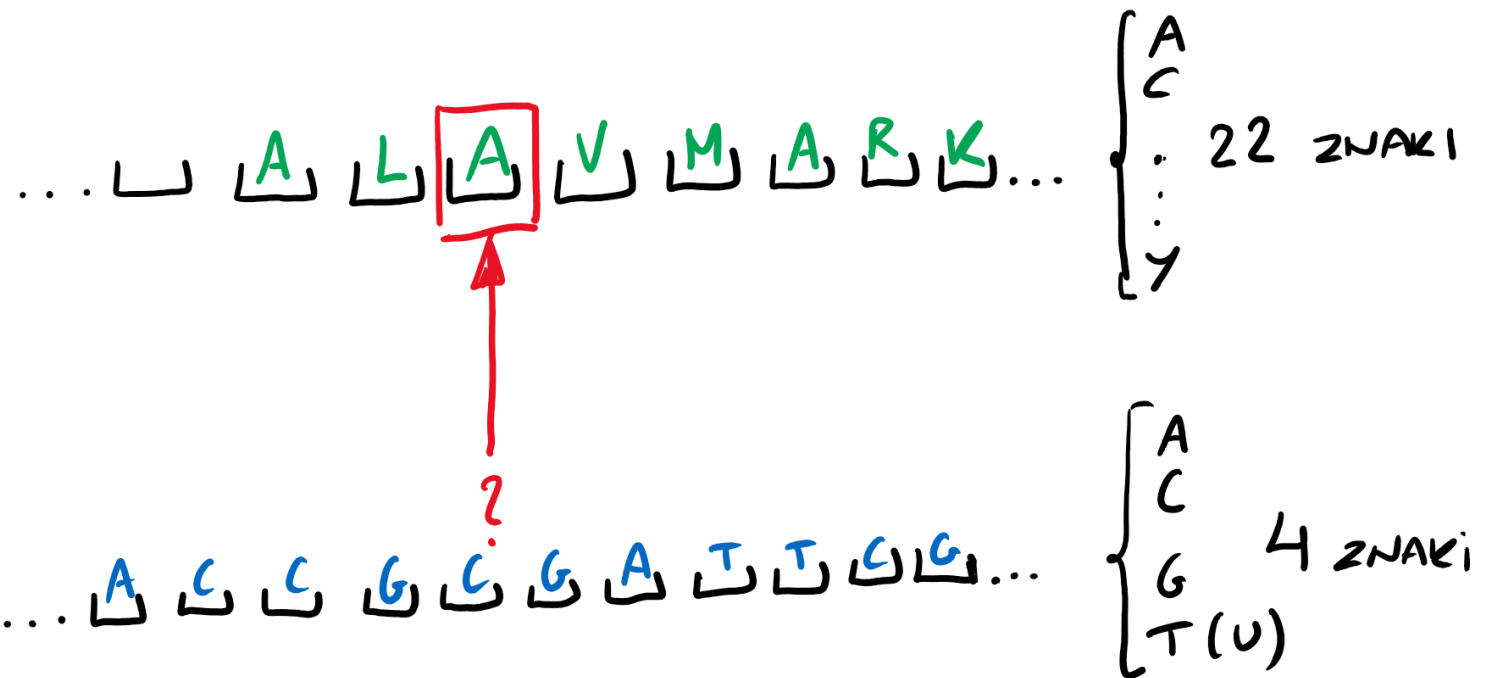
| ASCII control characters |      |                       | ASCII printable characters |       |    |   | Extended ASCII characters |   |     |      |
|--------------------------|------|-----------------------|----------------------------|-------|----|---|---------------------------|---|-----|------|
| 00                       | NULL | (Null character)      | 32                         | space | 64 | @ | 96                        | ` | 128 | Ç    |
| 01                       | SOH  | (Start of Header)     | 33                         | !     | 65 | A | 97                        | a | 129 | ü    |
| 02                       | STX  | (Start of Text)       | 34                         | "     | 66 | B | 98                        | b | 130 | é    |
| 03                       | ETX  | (End of Text)         | 35                         | #     | 67 | C | 99                        | c | 131 | â    |
| 04                       | EOT  | (End of Trans.)       | 36                         | \$    | 68 | D | 100                       | d | 132 | ä    |
| 05                       | ENQ  | (Enquiry)             | 37                         | %     | 69 | E | 101                       | e | 133 | à    |
| 06                       | ACK  | (Acknowledgement)     | 38                         | &     | 70 | F | 102                       | f | 134 | á    |
| 07                       | BEL  | (Bell)                | 39                         | '     | 71 | G | 103                       | g | 135 | ç    |
| 08                       | BS   | (Backspace)           | 40                         | (     | 72 | H | 104                       | h | 136 | ê    |
| 09                       | HT   | (Horizontal Tab)      | 41                         | )     | 73 | I | 105                       | i | 137 | ë    |
| 10                       | LF   | (Line feed)           | 42                         | *     | 74 | J | 106                       | j | 138 | è    |
| 11                       | VT   | (Vertical Tab)        | 43                         | +     | 75 | K | 107                       | k | 139 | ï    |
| 12                       | FF   | (Form feed)           | 44                         | ,     | 76 | L | 108                       | l | 140 | í    |
| 13                       | CR   | (Carriage return)     | 45                         | -     | 77 | M | 109                       | m | 141 | ì    |
| 14                       | SO   | (Shift Out)           | 46                         | .     | 78 | N | 110                       | n | 142 | Ä    |
| 15                       | SI   | (Shift In)            | 47                         | /     | 79 | O | 111                       | o | 143 | Å    |
| 16                       | DLE  | (Data link escape)    | 48                         | 0     | 80 | P | 112                       | p | 144 | É    |
| 17                       | DC1  | (Device control 1)    | 49                         | 1     | 81 | Q | 113                       | q | 145 | æ    |
| 18                       | DC2  | (Device control 2)    | 50                         | 2     | 82 | R | 114                       | r | 146 | Æ    |
| 19                       | DC3  | (Device control 3)    | 51                         | 3     | 83 | S | 115                       | s | 147 | ø    |
| 20                       | DC4  | (Device control 4)    | 52                         | 4     | 84 | T | 116                       | t | 148 | ö    |
| 21                       | NAK  | (Negative acknowl.)   | 53                         | 5     | 85 | U | 117                       | u | 149 | ó    |
| 22                       | SYN  | (Synchronous idle)    | 54                         | 6     | 86 | V | 118                       | v | 150 | ù    |
| 23                       | ETB  | (End of trans. block) | 55                         | 7     | 87 | W | 119                       | w | 151 | û    |
| 24                       | CAN  | (Cancel)              | 56                         | 8     | 88 | X | 120                       | x | 152 | ÿ    |
| 25                       | EM   | (End of medium)       | 57                         | 9     | 89 | Y | 121                       | y | 153 | Ö    |
| 26                       | SUB  | (Substitute)          | 58                         | :     | 90 | Z | 122                       | z | 154 | Ü    |
| 27                       | ESC  | (Escape)              | 59                         | ;     | 91 | [ | 123                       | { | 155 | ø    |
| 28                       | FS   | (File separator)      | 60                         | <     | 92 | \ | 124                       |   | 156 | £    |
| 29                       | GS   | (Group separator)     | 61                         | =     | 93 | ] | 125                       | } | 157 | Ø    |
| 30                       | RS   | (Record separator)    | 62                         | >     | 94 | ^ | 126                       | ~ | 158 | x    |
| 31                       | US   | (Unit separator)      | 63                         | ?     | 95 | _ |                           |   | 159 | f    |
| 127                      | DEL  | (Delete)              |                            |       |    |   |                           |   | 160 | á    |
|                          |      |                       |                            |       |    |   |                           |   | 161 | í    |
|                          |      |                       |                            |       |    |   |                           |   | 162 | ó    |
|                          |      |                       |                            |       |    |   |                           |   | 163 | û    |
|                          |      |                       |                            |       |    |   |                           |   | 164 | ñ    |
|                          |      |                       |                            |       |    |   |                           |   | 165 | Ñ    |
|                          |      |                       |                            |       |    |   |                           |   | 166 | ª    |
|                          |      |                       |                            |       |    |   |                           |   | 167 | º    |
|                          |      |                       |                            |       |    |   |                           |   | 168 | ¿    |
|                          |      |                       |                            |       |    |   |                           |   | 169 | ©    |
|                          |      |                       |                            |       |    |   |                           |   | 170 | ¬    |
|                          |      |                       |                            |       |    |   |                           |   | 171 | ½    |
|                          |      |                       |                            |       |    |   |                           |   | 172 | ¼    |
|                          |      |                       |                            |       |    |   |                           |   | 173 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 174 | «    |
|                          |      |                       |                            |       |    |   |                           |   | 175 | »    |
|                          |      |                       |                            |       |    |   |                           |   | 176 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 177 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 178 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 179 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 180 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 181 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 182 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 183 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 184 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 185 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 186 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 187 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 188 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 189 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 190 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 191 | ¸    |
|                          |      |                       |                            |       |    |   |                           |   | 192 | Ł    |
|                          |      |                       |                            |       |    |   |                           |   | 193 | ł    |
|                          |      |                       |                            |       |    |   |                           |   | 194 | Ť    |
|                          |      |                       |                            |       |    |   |                           |   | 195 | ť    |
|                          |      |                       |                            |       |    |   |                           |   | 196 | —    |
|                          |      |                       |                            |       |    |   |                           |   | 197 | †    |
|                          |      |                       |                            |       |    |   |                           |   | 198 | ‡    |
|                          |      |                       |                            |       |    |   |                           |   | 199 | Ä    |
|                          |      |                       |                            |       |    |   |                           |   | 200 | ä    |
|                          |      |                       |                            |       |    |   |                           |   | 201 | Œ    |
|                          |      |                       |                            |       |    |   |                           |   | 202 | œ    |
|                          |      |                       |                            |       |    |   |                           |   | 203 | ƒ    |
|                          |      |                       |                            |       |    |   |                           |   | 204 | ƒ    |
|                          |      |                       |                            |       |    |   |                           |   | 205 | —    |
|                          |      |                       |                            |       |    |   |                           |   | 206 | ‡    |
|                          |      |                       |                            |       |    |   |                           |   | 207 | ‡    |
|                          |      |                       |                            |       |    |   |                           |   | 208 | ø    |
|                          |      |                       |                            |       |    |   |                           |   | 209 | Ð    |
|                          |      |                       |                            |       |    |   |                           |   | 210 | ð    |
|                          |      |                       |                            |       |    |   |                           |   | 211 | È    |
|                          |      |                       |                            |       |    |   |                           |   | 212 | é    |
|                          |      |                       |                            |       |    |   |                           |   | 213 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 214 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 215 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 216 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 217 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 218 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 219 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 220 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 221 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 222 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 223 | ı    |
|                          |      |                       |                            |       |    |   |                           |   | 224 | Ó    |
|                          |      |                       |                            |       |    |   |                           |   | 225 | ó    |
|                          |      |                       |                            |       |    |   |                           |   | 226 | Ô    |
|                          |      |                       |                            |       |    |   |                           |   | 227 | ô    |
|                          |      |                       |                            |       |    |   |                           |   | 228 | õ    |
|                          |      |                       |                            |       |    |   |                           |   | 229 | ö    |
|                          |      |                       |                            |       |    |   |                           |   | 230 | µ    |
|                          |      |                       |                            |       |    |   |                           |   | 231 | þ    |
|                          |      |                       |                            |       |    |   |                           |   | 232 | þ    |
|                          |      |                       |                            |       |    |   |                           |   | 233 | ú    |
|                          |      |                       |                            |       |    |   |                           |   | 234 | û    |
|                          |      |                       |                            |       |    |   |                           |   | 235 | ü    |
|                          |      |                       |                            |       |    |   |                           |   | 236 | ý    |
|                          |      |                       |                            |       |    |   |                           |   | 237 | ÿ    |
|                          |      |                       |                            |       |    |   |                           |   | 238 | —    |
|                          |      |                       |                            |       |    |   |                           |   | 239 | —    |
|                          |      |                       |                            |       |    |   |                           |   | 240 | ≡    |
|                          |      |                       |                            |       |    |   |                           |   | 241 | ±    |
|                          |      |                       |                            |       |    |   |                           |   | 242 | ±    |
|                          |      |                       |                            |       |    |   |                           |   | 243 | ¼    |
|                          |      |                       |                            |       |    |   |                           |   | 244 | ½    |
|                          |      |                       |                            |       |    |   |                           |   | 245 | ¾    |
|                          |      |                       |                            |       |    |   |                           |   | 246 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 247 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 248 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 249 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 250 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 251 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 252 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 253 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 254 | ÷    |
|                          |      |                       |                            |       |    |   |                           |   | 255 | nbsp |

... L A L A M A K ...

{ A  
B  
...  
Z } 256 znaków

... 0 1 0 0 0 0 1 ...

{ 0  
1 } 2 znaki



|              |   | Second letter                                               |                                    |                                                         |                                                         |              |   |
|--------------|---|-------------------------------------------------------------|------------------------------------|---------------------------------------------------------|---------------------------------------------------------|--------------|---|
|              |   | U                                                           | C                                  | A                                                       | G                                                       |              |   |
| First letter | U | UUU Phenylalanine<br>UUC<br>UUA Leucine<br>UUG              | UCU Serine<br>UCC<br>UCA<br>UCG    | UAU Tyrosine<br>UAC<br>UAA Stop codon<br>UAG Stop codon | UGU Cysteine<br>UGC<br>UGA Stop codon<br>UGG Tryptophan | Third letter | U |
|              | C | CUU Leucine<br>CUC<br>CUA<br>CUG                            | CCU Proline<br>CCC<br>CCA<br>CCG   | CAU Histidine<br>CAC<br>CAA Glutamine<br>CAG            | CGU Arginine<br>CGC<br>CGA<br>CGG                       |              | C |
|              | A | AUU Isoleucine<br>AUC<br>AUA<br>AUG Methionine; start codon | ACU Threonine<br>ACC<br>ACA<br>ACG | AAU Asparagine<br>AAC<br>AAA Lysine<br>AAG              | AGU Serine<br>AGC<br>AGA Arginine<br>AGG                |              | A |
|              | G | GUU Valine<br>GUC<br>GUA<br>GUG                             | GCU Alanine<br>GCC<br>GCA<br>GCG   | GAU Aspartic acid<br>GAC<br>GAA Glutamic acid<br>GAG    | GGU Glycine<br>GGC<br>GGA<br>GGG                        |              | G |

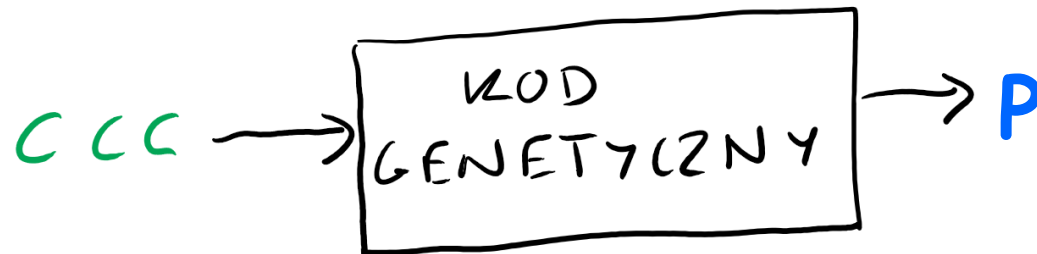
... A L A V M A R K...

$\left\{ \begin{array}{l} A \\ C \\ \vdots \\ G \end{array} \right. \quad 22 \text{ znaki}$

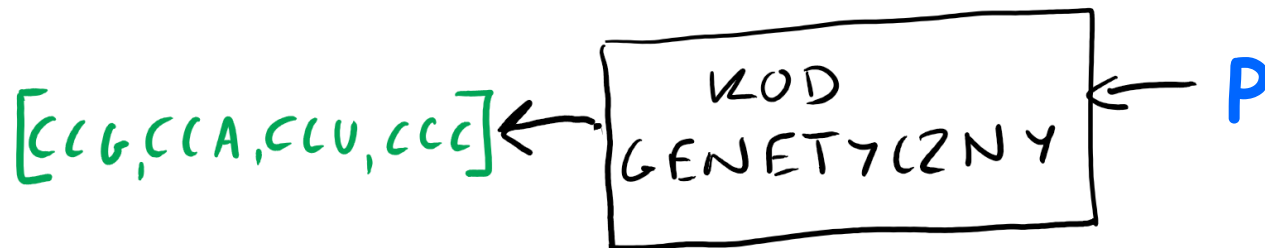
... A C C G C G A T T C G...

$\left\{ \begin{array}{l} A \\ C \\ G \\ T(U) \end{array} \right. \quad 4 \text{ znaki}$

MAPA: KODON → AMINOKWAS



MULTIMAPA: AMINOKWAS → KODONY





Kod genetyczny raka złamany - X +

https://www.tvp.info/1181989/kod-genetyczny-r- Search

TVP INFO

## Kod genetyczny raka złamany

ANND, KAN 17.12.2009, 07:24



■ Odkrycie genomu nowotworu daje nadzieję chorym (fot. arch.PAP/EPA)

**Naukowcy złamali kod genetyczny nowotworu skóry i płuc. Lekarze terapii do każdego pacjenta indywidualnie – mówią badacze z Uniw**

Udało się zbadać zmiany jakie zachodzą w materiale genetycznym dwóch ro podczas rozwoju tych nowotworów – informują naukowcy z Wielkiej Brytan opublikowanych w najnowszym numerze czasopisma „Nature”.

Kod genetyczny goryla złamany - X +

https://www.tvp.info/6686251/informacje/nauka/ Search

TVP INFO

## Kod genetyczny goryla złamany

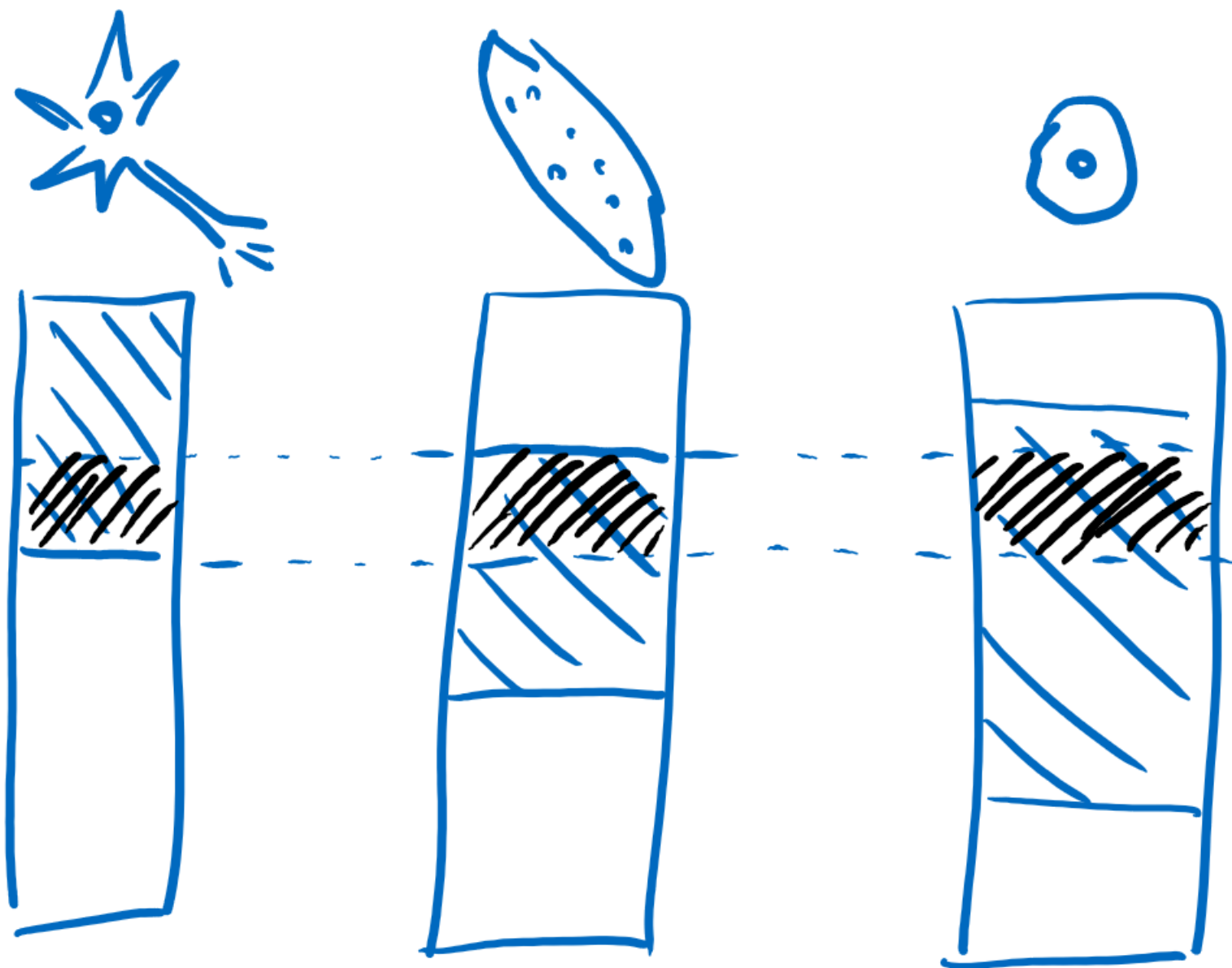
PL, ZBYT 07.03.2012, 21:54



■ Nauka rozwiązała następną genetyczną zagadkę (fot. wikipedia.org/Mila)

**Naukowcy złamali kod genetyczny goryla. Nowa wiedza może posłużyć do lepszego zrozumienia ewolucji człowieka. Być może zostanie wykorzystana do leczenia niektórych chorób. Wyniki badań publikuje prestiżowy tygodnik naukowy „Nature”.**

Genomy innych człowiekowatych – szympansa, orangutana czy człowieka – są już znane. Teraz dzięki pracy grupy międzynarodowych naukowców dołączył do nich goryl. Do badań posłużyła samica – jak żartują naukowcy:



POLIMERAZA



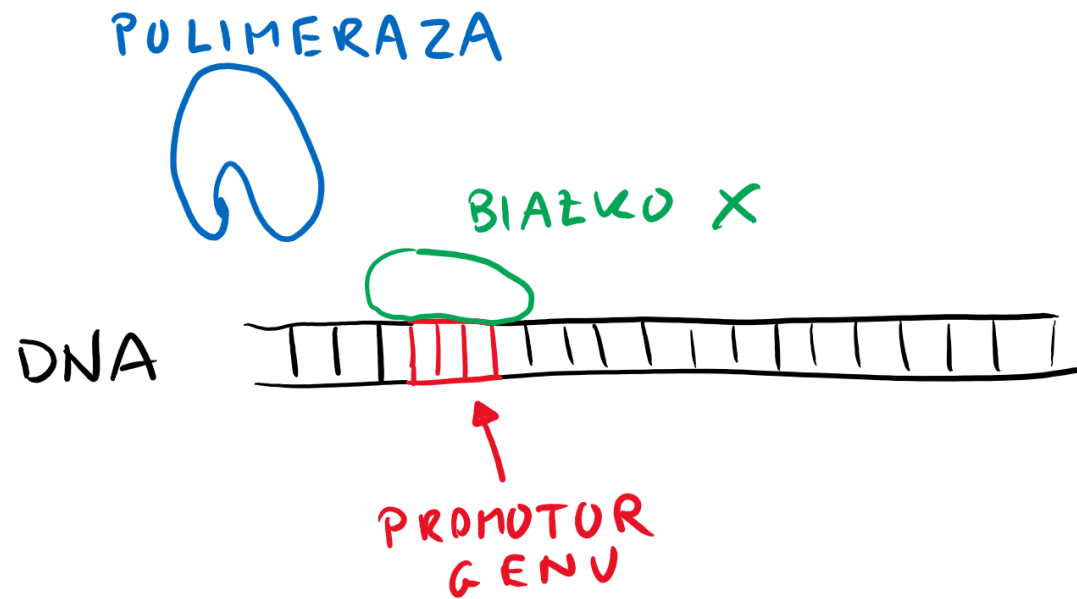
DNA

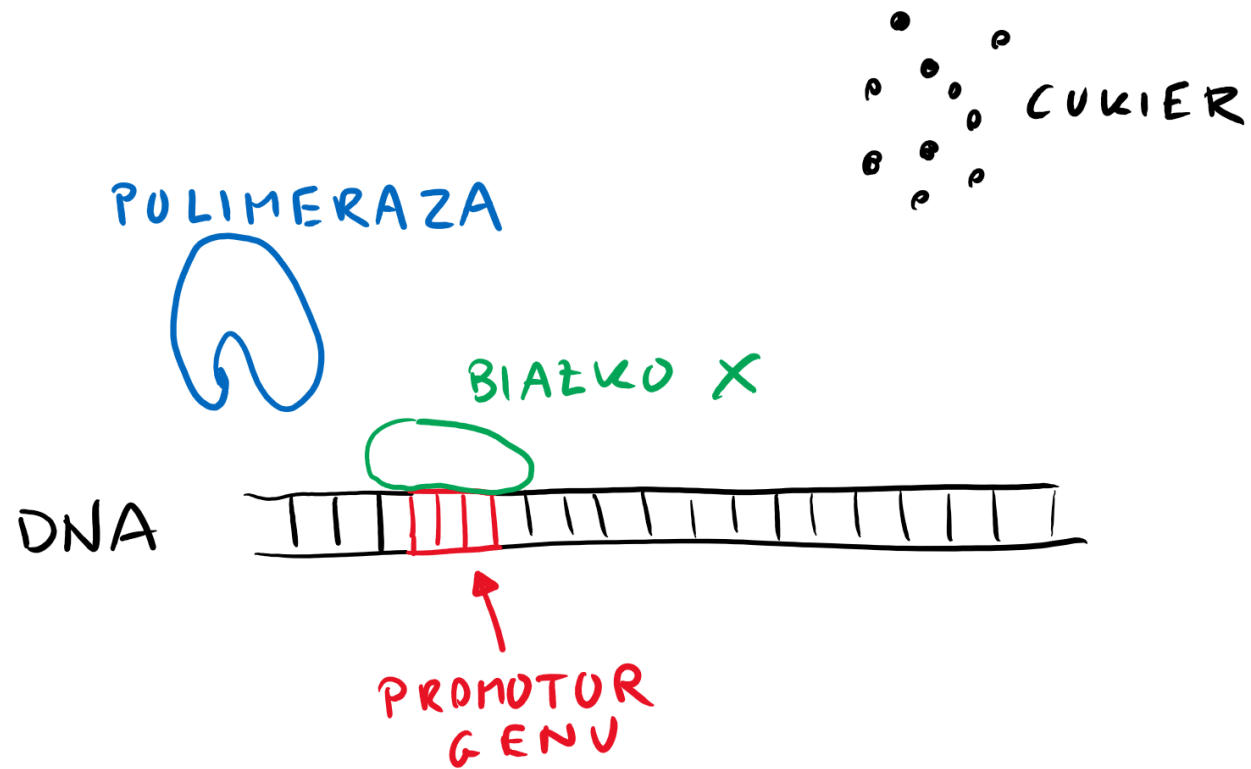


PROMOTOR  
GENU

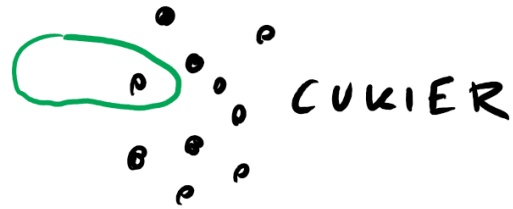








BIAŁKO X



POLIMERAZA



DNA



PROMOTOR  
GENU



BIAŁKO X

