

# História, súčasnosť a budúcnosť autentifikácie potravín na úrovni DNA.



## Modul č. 1: Genetika živočíchov

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Bezpečnosť potravín

# Autentifikácia potravín

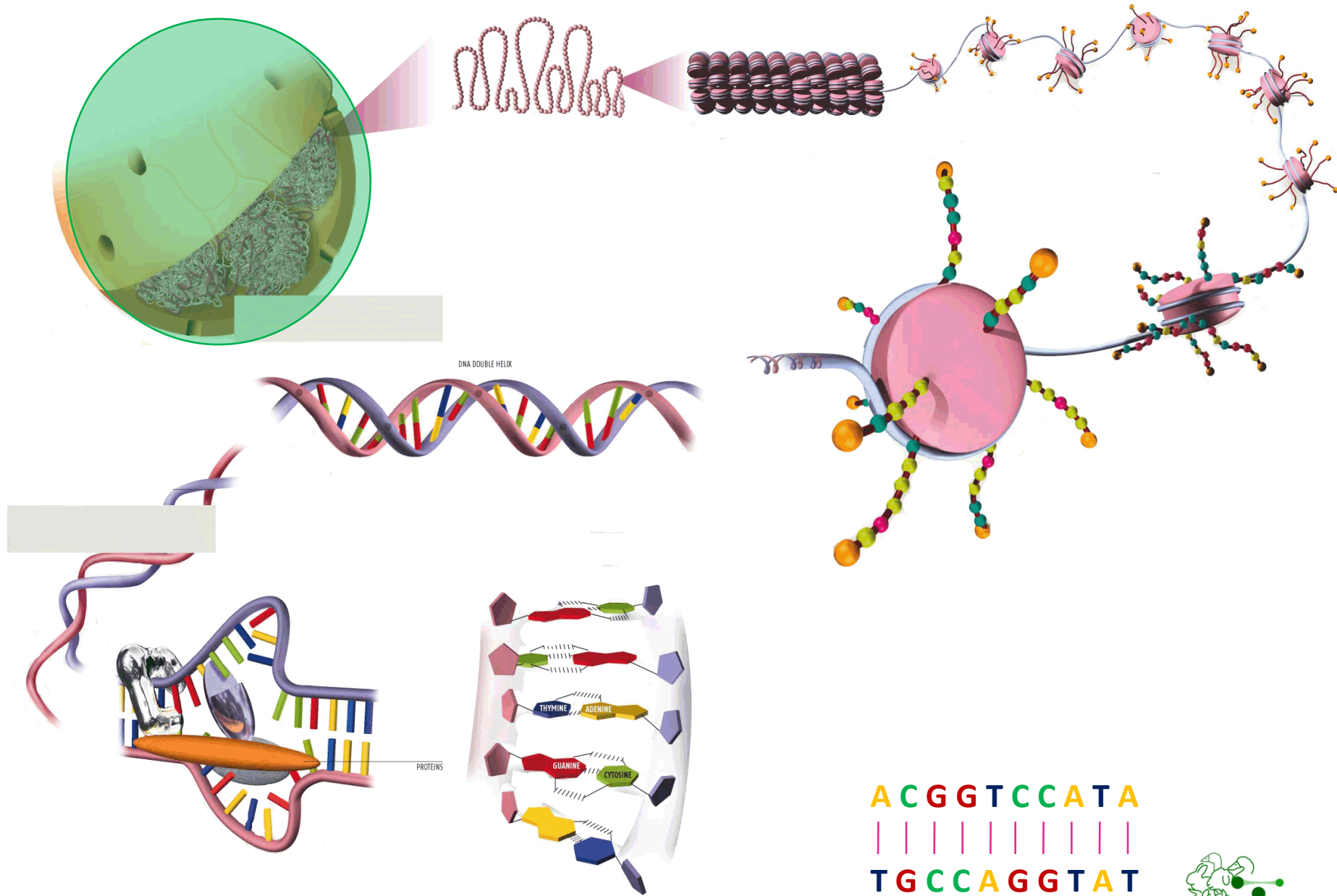


Vysledovateľnosť potravín

Erasmus+ project 2021-1-SK01-KA220-HED-000032068



Co-funded by  
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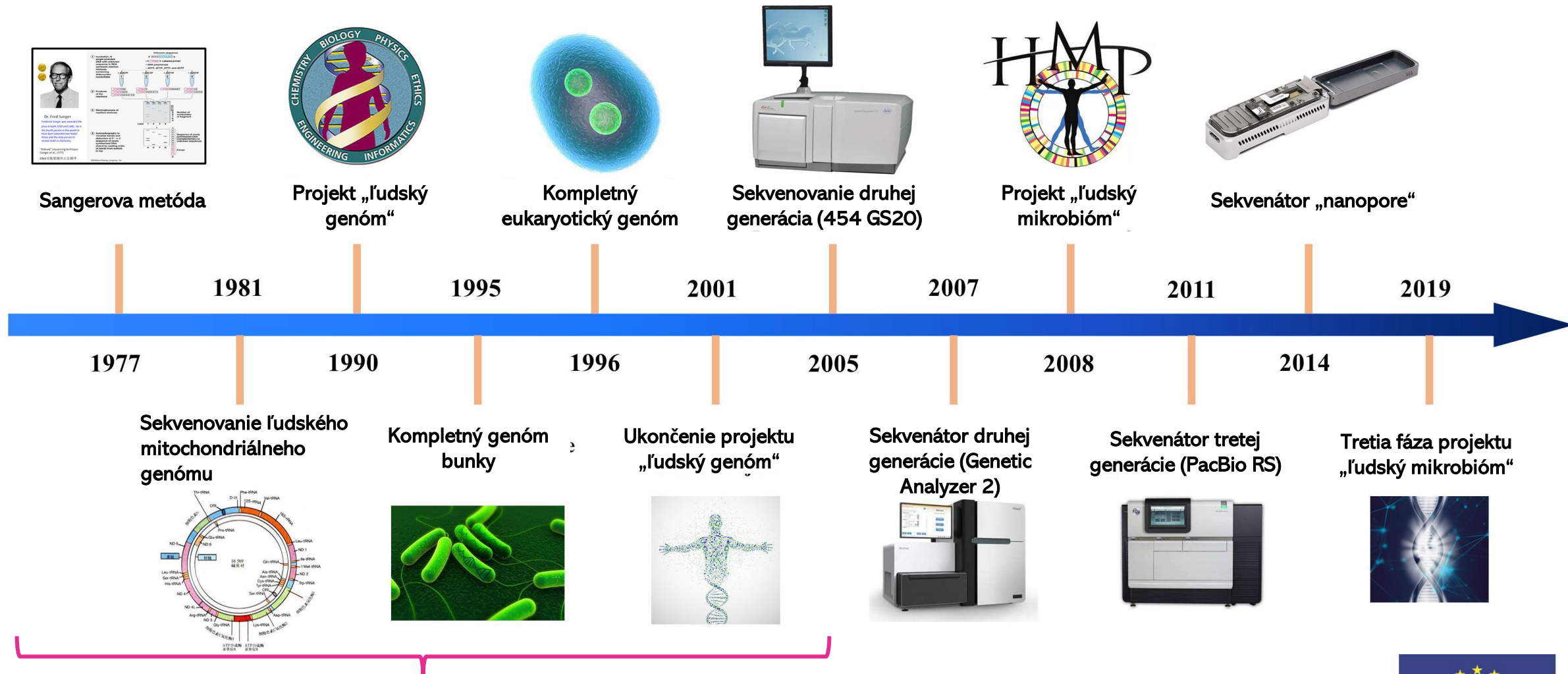


Zdroj: <https://www.wallpaperflare.com/3-abstraction-d-dna-genetic-molecule-pattern-psychedelic-wallpaper-swnqb>

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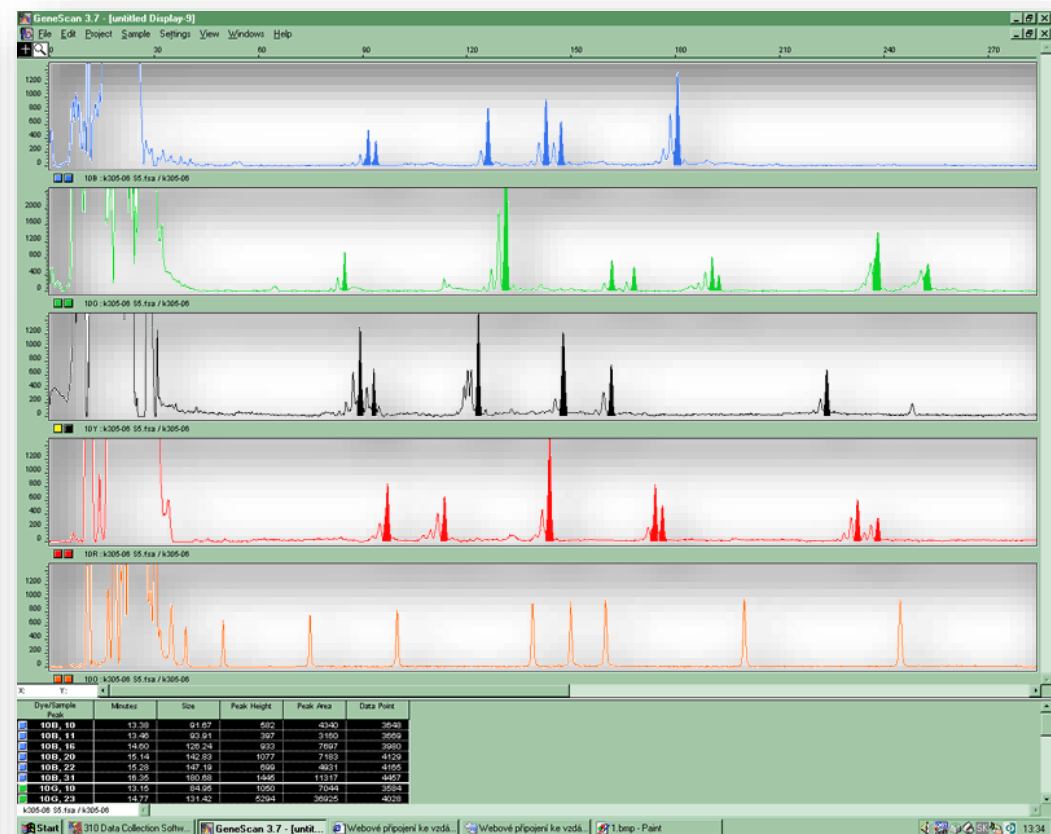


Zdroj: Yang, Aimin & Zhang, Wei & Wang, Jiahao & Yang, Ke & Han, Yang & Zhang, Limin. (2020). Review on the Application of Machine Learning Algorithms in the Sequence Data Mining of DNA. *Frontiers in Bioengineering and Biotechnology*. 8. 1032. 10.3389/fbioe.2020.01032.



# Identification on individual level

| 175/05      | 206/06      | 175/00      |         |
|-------------|-------------|-------------|---------|
| 148.4 162.2 | 147.8 161.6 | 148.1 153.5 | AHT4    |
| H O         | H O         | H K         |         |
| 134.4 140.8 | 131.8 134.1 | 132.3 140.8 | AHT5    |
| K N         | J K         | J N         |         |
| 109.5 111.5 | 95.17 109.7 | 95.24 109.6 | ASB17   |
| N O         | G N         | G N         |         |
| 240.0 254.5 | 245.3 253.5 | 246.5 254.8 | ASB2    |
| K R         | N R         | N R         |         |
| 189.5       | 191.7       | 191.7 207.5 | ASB23   |
| J K         | K           | K S         |         |
| 245.6       | 237.6 245.2 | 237.8 245.6 | CA425   |
| N           | J N         | J N         |         |
| 173.0       | 172.3       | 173.3       | HMS1    |
| I J         | I J         | I           |         |
| 225.7       | 225.4       | 225.8       | HMS2    |
| L           | L           | L           |         |
| 152 167     | 151.6 166.6 | 151.9 166.8 | HMS3    |
| I P         | I P         | I P         |         |
| 163.3 169.3 | 163.1 169.4 | 169.4       | HMS6    |
| M P         | M P         | P           |         |
| 177.6 183.2 | 173.3 183.1 | 173.4 179.4 | HMS7    |
| L O         | J O         | J M         |         |
| 129.3       | 128.5 133.5 | 129.3 133.6 | HTG4    |
| K M         | K M         | K M         |         |
| 84.47 90.33 | 89.83       | 90.14       | HTG6    |
| G J         | J           | J           |         |
| 128.5       | 128.5       | 120.3 128.6 | HTG7    |
| O           | O           | K O         |         |
| 101.1 111.1 | 95.5 109.5  | 96.87 105.0 | HTG10   |
| M R         | J Q         | K O         |         |
| 143.9       | 143.4       | 143.7 154.4 | LEX3    |
| H           | H           | H M         |         |
| 97.14 99.37 | 96.91       | 97.08 99.36 | VHL20   |
| M N         | M           | M N         |         |
| 30.9.2005   | 26.5.2006   | 9.10.2007   | DatAnal |



# Kapilárová elektroforéza



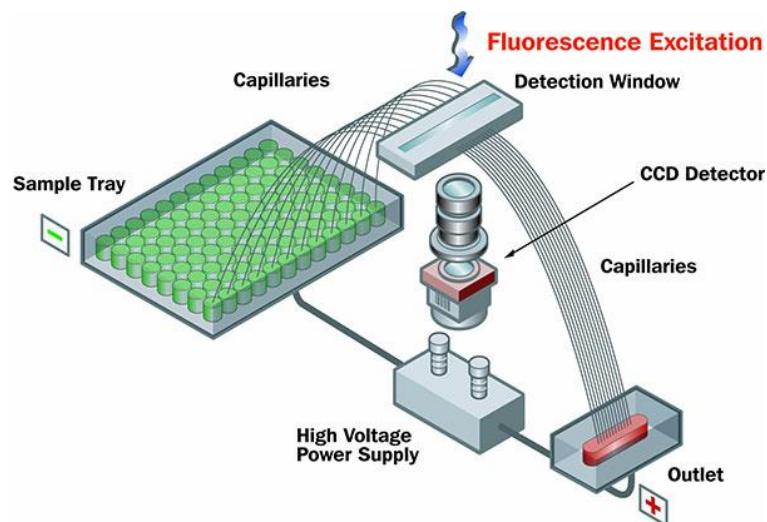
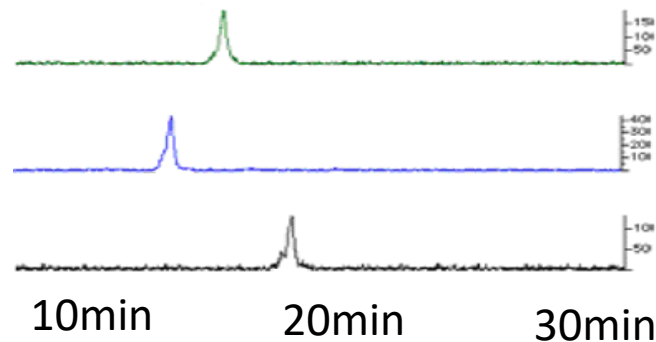
Alela 1



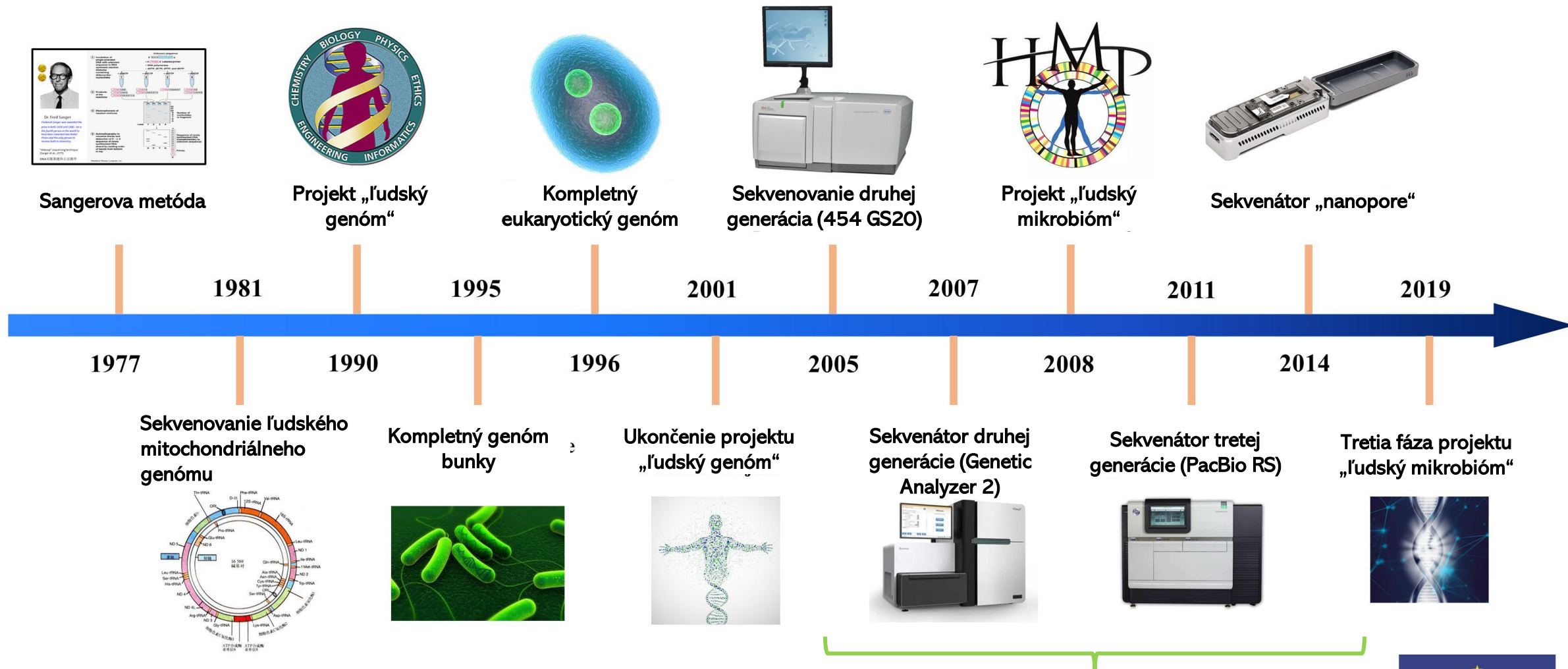
Alela 2



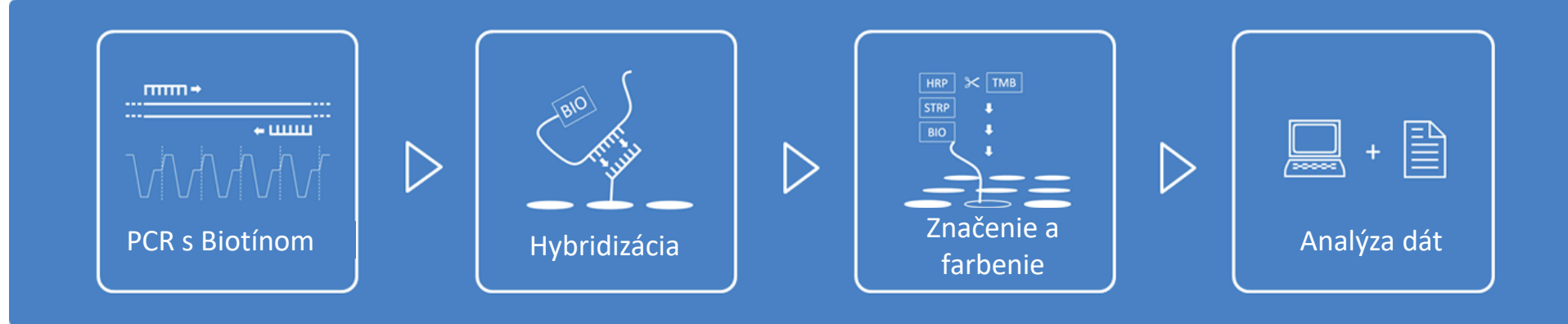
Alela 3



Zdroj: <https://www.slideserve.com/orinda/protein-pro-parallel-capillary-electrophoresis-system-overview>



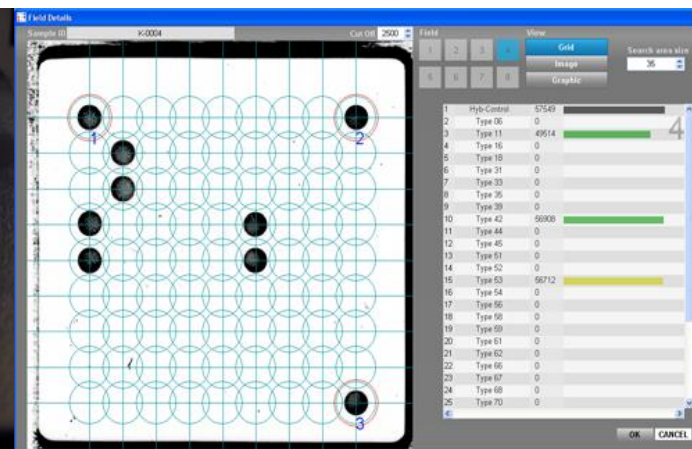
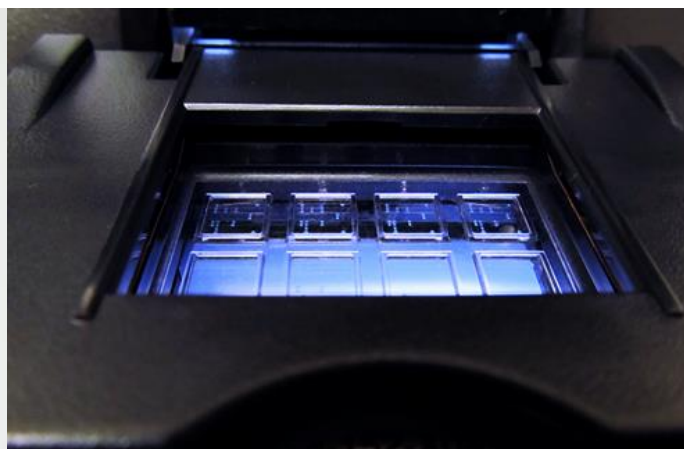
Zdroj: Yang, Aimin & Zhang, Wei & Wang, Jiahao & Yang, Ke & Han, Yang & Zhang, Limin. (2020). Review on the Application of Machine Learning Algorithms in the Sequence Data Mining of DNA. *Frontiers in Bioengineering and Biotechnology*. 8. 1032. 10.3389/fbioe.2020.01032.



90 min.

45 min.

5 min.



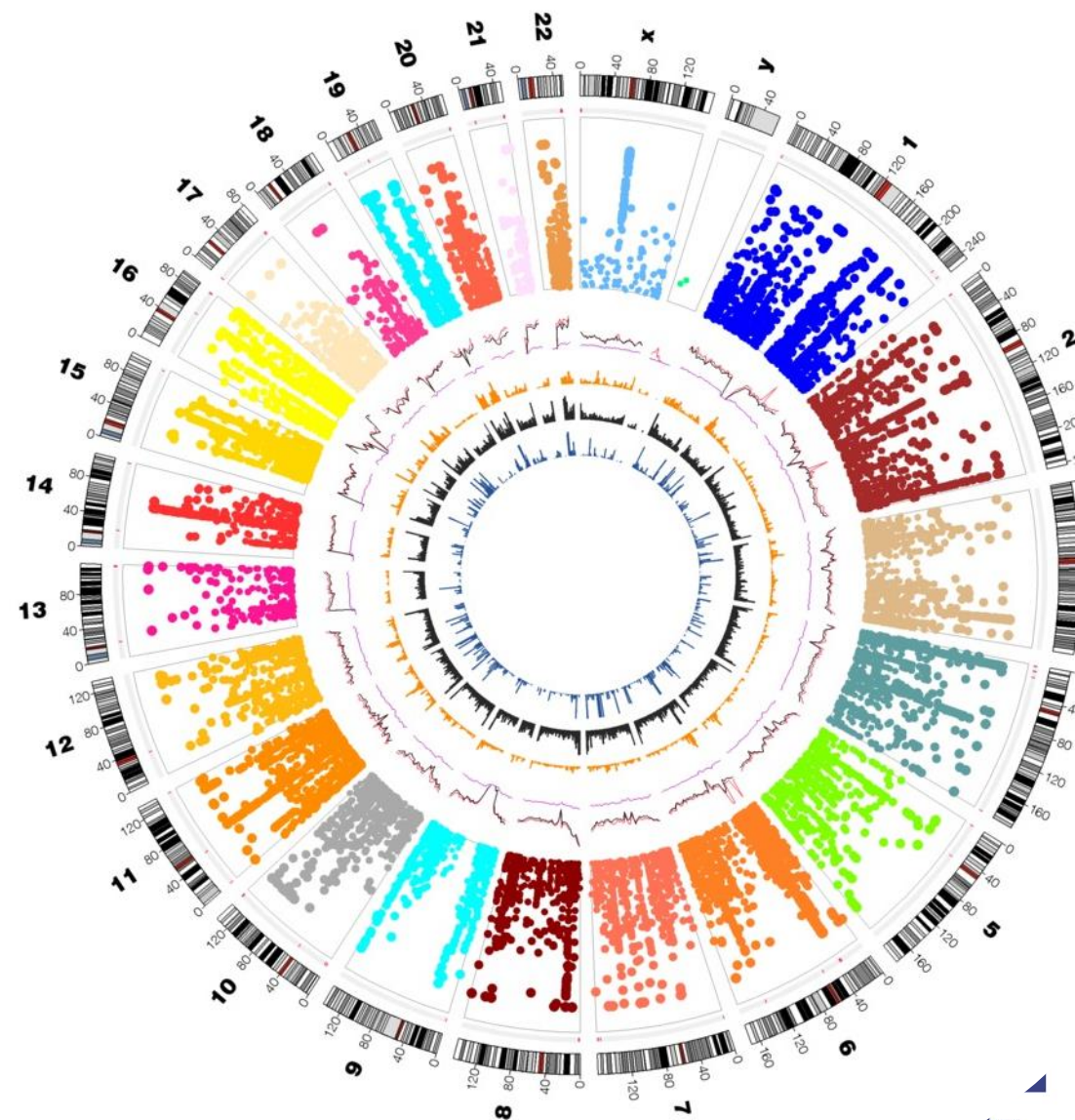
Zdroj: Drdolová, Zuzana & Golian, Jozef & Čurlej, Jozef & Marsalkova, Lenka. (2017). Verification of animal species in ham and salami by DNA microarray and Real time PCR methods. Potravinarstvo. 11. 10.5219/831.



# GENOMIKA

**Genomika** je štúdium celých genómov organizmov a zahŕňa prvky genetiky. **Genomika** využíva kombináciu rekombinantnej DNA, metód sekvenovania DNA a bioinformatiky na sekvenovanie, zostavovanie a analýzu štruktúry a funkcie genómov.

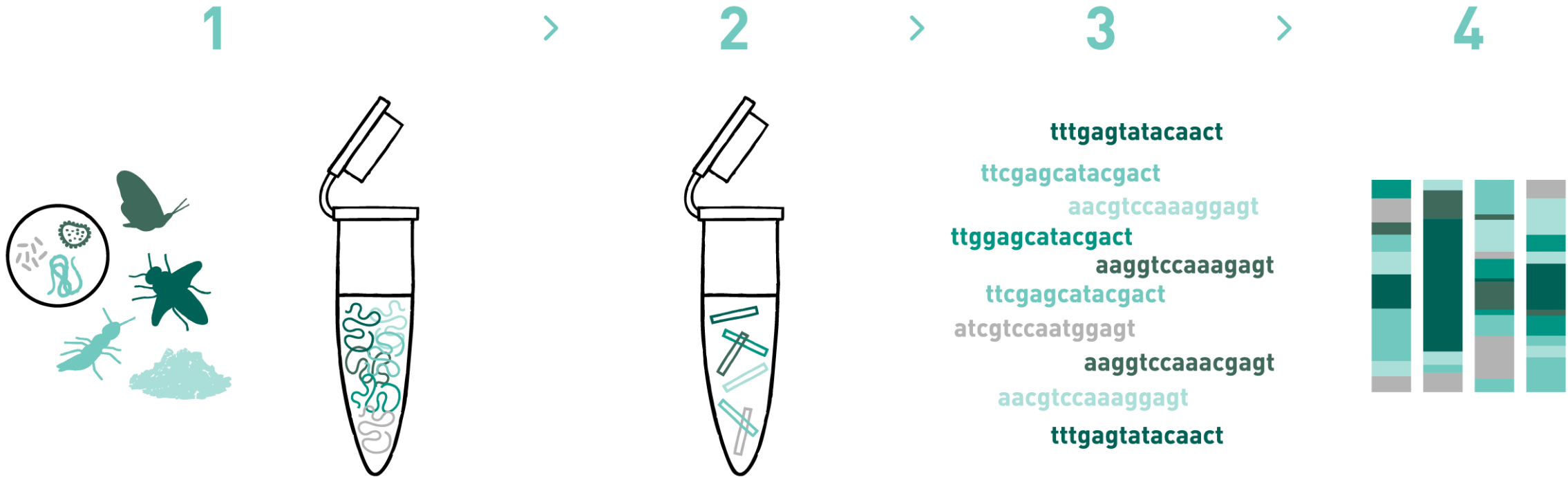
Zdroj: [https://www.hku.hk/press/news\\_detail\\_13152.html](https://www.hku.hk/press/news_detail_13152.html)





Zdroj: <https://upselling.biz.id/oxford-nanopore-technologies-cost/>

# METABARCODING



Zdroj: <https://www.allgenetics.eu/services/genomic-solutions-for-your-company/environment/biodiversity-monitoring-by-dna-metabarcoding/>



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# Ďakujem za pozornosť!

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