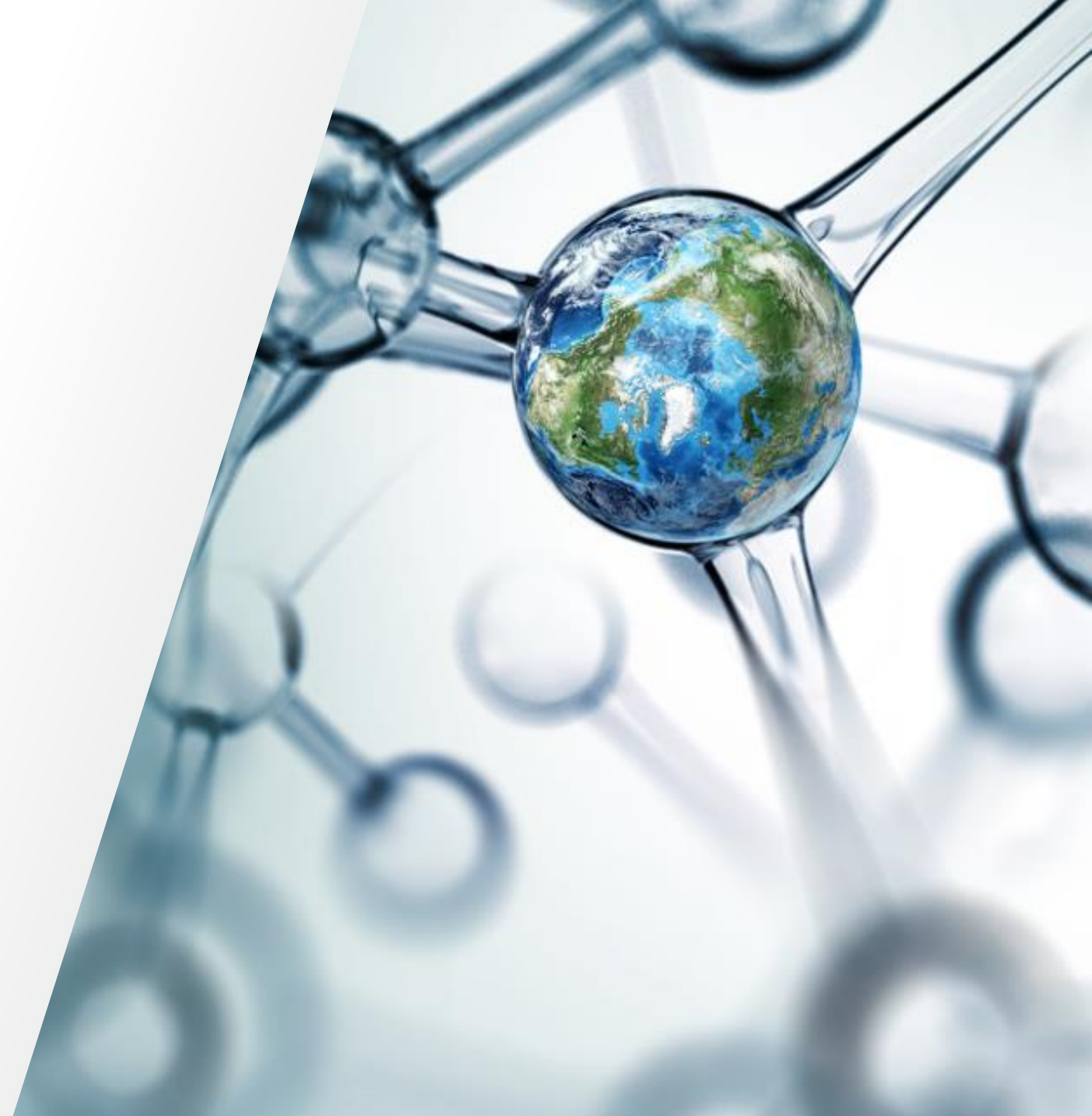


# Orbitální pasti ve službách pokroku

Lukáš Plaček





POHODLÍ



ZDRAVÍ



OCHRANA

**Phadia**

**affymetrix**

**PPD**

**brammer bio**

**Alfa Aesar**

**Finesse**

**ASI**

**CORE INFORMATICS**

**PHITONEX**

**henogen**  
*From gene to clinical product*

**PharmaFluidics**  
*The micro-Chip Chromatography Company*

2011

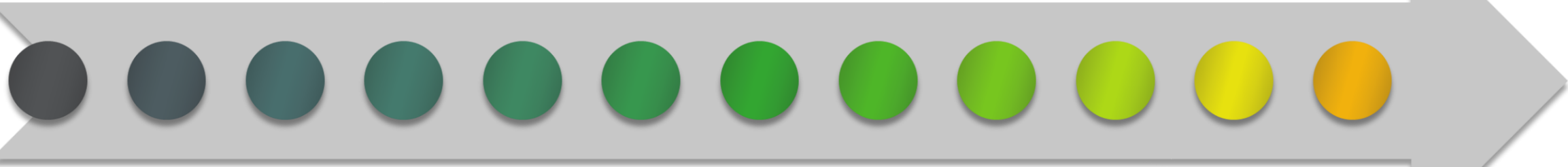
2013

2015

2017

2019

2021



2012

2014

2016

2018

**HighChem** 2020

2022

**life technologies**



**FEI**

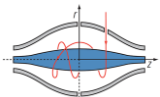
**MTI-GlobalStem**

**mmj**  
*HELPING YOU LIVE BETTER*

**Patheon**

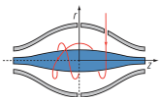
**QIAGEN**

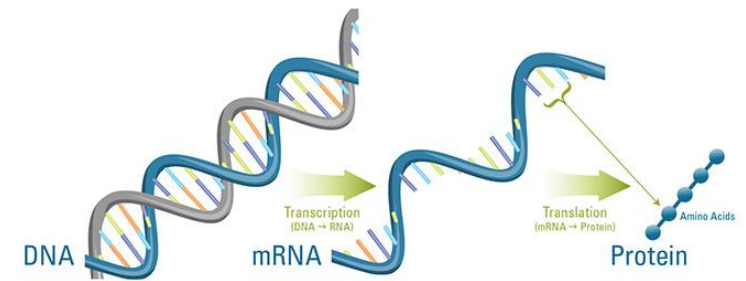
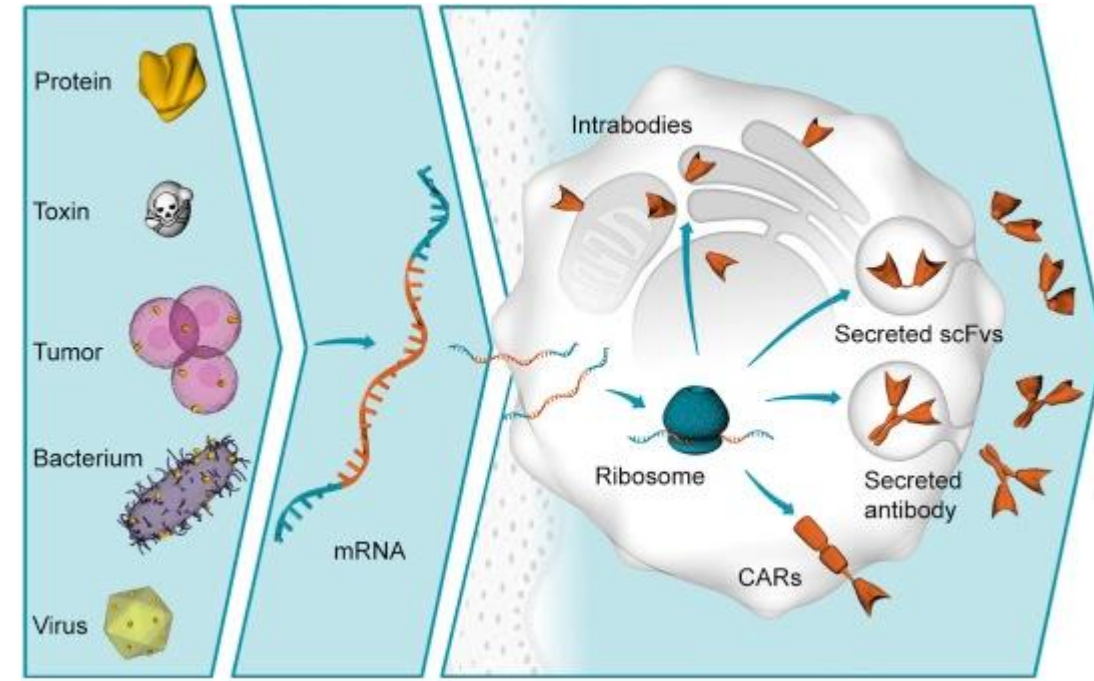
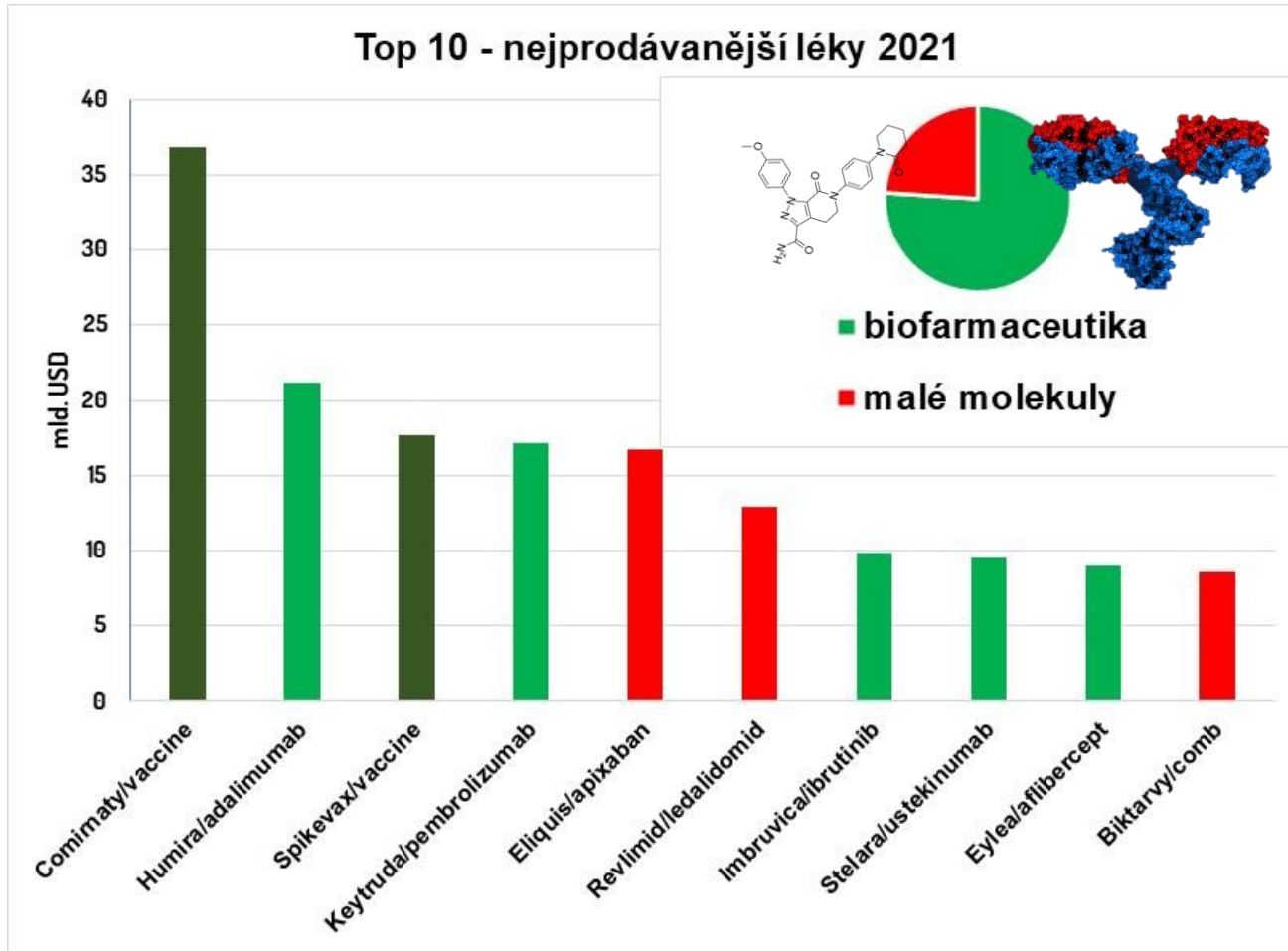
**PEPROTECH**  
*OUR SUPPORT, YOUR DISCOVERY*



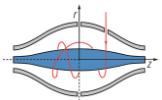


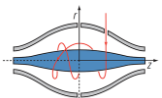
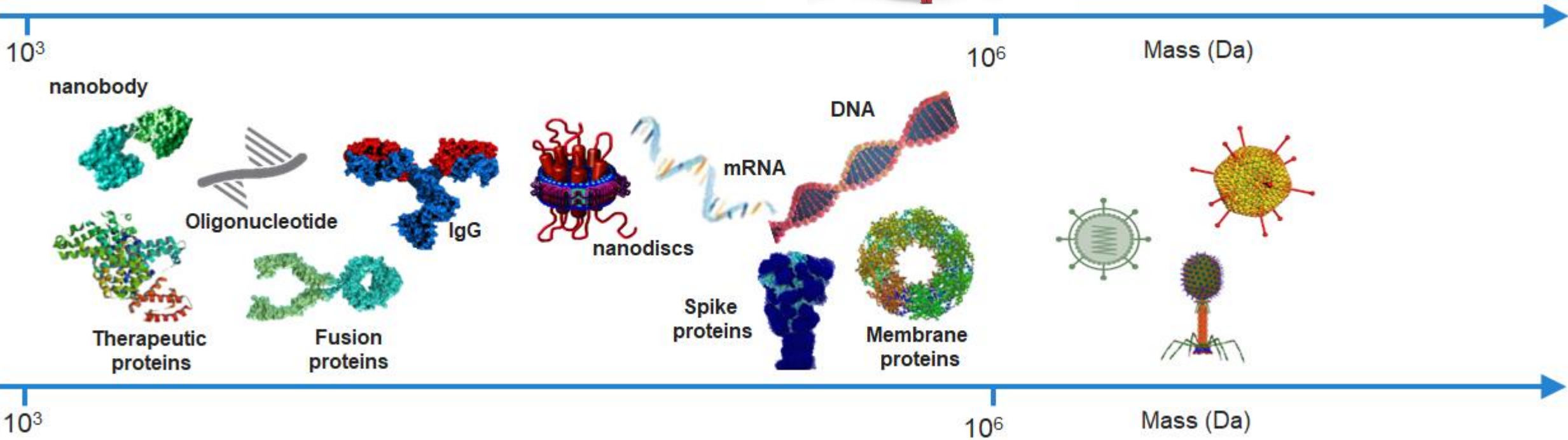
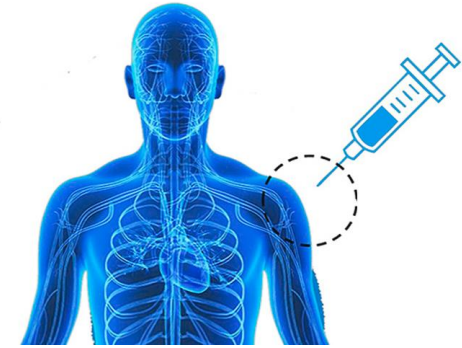
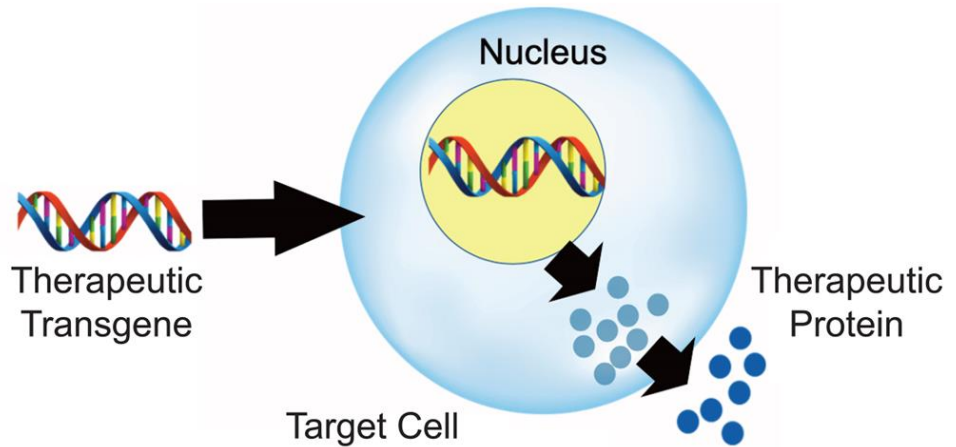
- Phadia – testování autoimunitních onemocnění
- Life Tech – DNA sekvenování a genetické testování
- Advanced Sci – bioprocesy
- Alfa Aesar – speciální chemikálie
- Affymetrix – výrobce DNA testů
- FEI – elektronové mikroskopy
- MTI-GlobalStem – transfekce, kmenové buňky
- Finesse Solutions – software pro bioprocesy
- Core Informatics – software a data management
- Patheon – CDMO biofarmaceutický průmysl
- Brammer Bio – genová terapie
- MMJ International Holdings – produkce léků na RS
- HighChem – MS software
- Qiagen – molekulární diagnostika
- Phitonex, Lenexa – covid diagnostika
- Henogen, Mesa Biotech – viral vectors
- PPD – CRO výzkum a vývoj léků
- PharmaFluidics -  $\mu$ PAC kolony
- PeperoTech – genová terapie

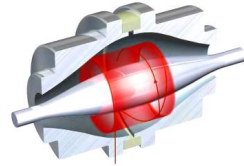




[www.pharmacompass.com](http://www.pharmacompass.com), [www.genethera.com](http://www.genethera.com)







AccelerOme

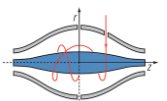
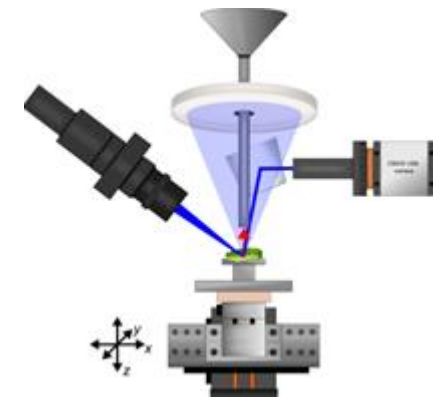
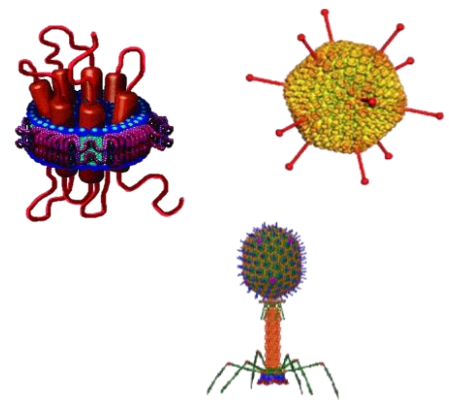
ToxExplorer

$\mu$ PAC Neo

SW

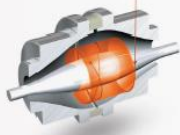
Direct Mass

AP-SMALDI<sup>5</sup>



## Pragolab

Špičkové přístroje a služby z oboru analytické chemie pro český a slovenský trh.



HMOTNOSTNÍ  
SPEKTROMETRIE



SEPARAČNÍ TECHNIKY

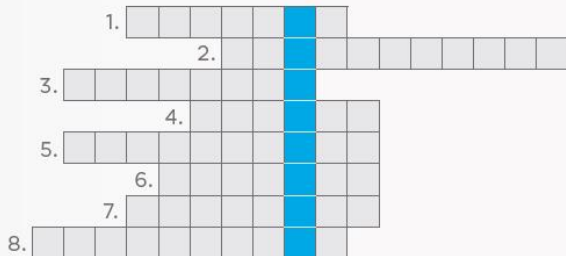


SW CHROMELEON

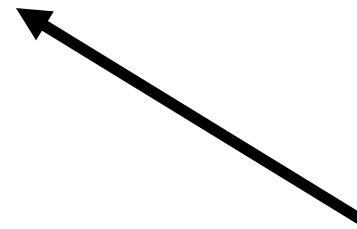


SPOTŘEBNÍ MATERIÁL

### Soutěžní křížovka

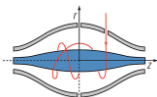
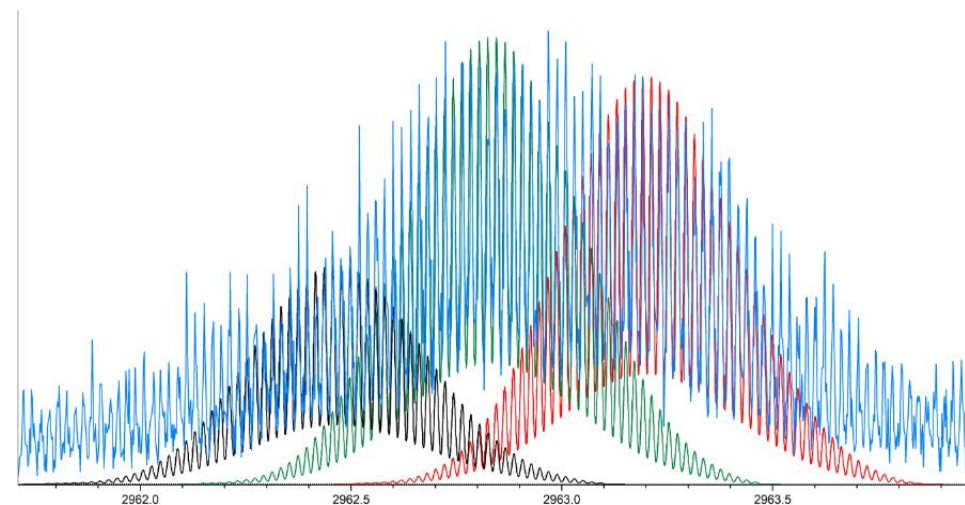
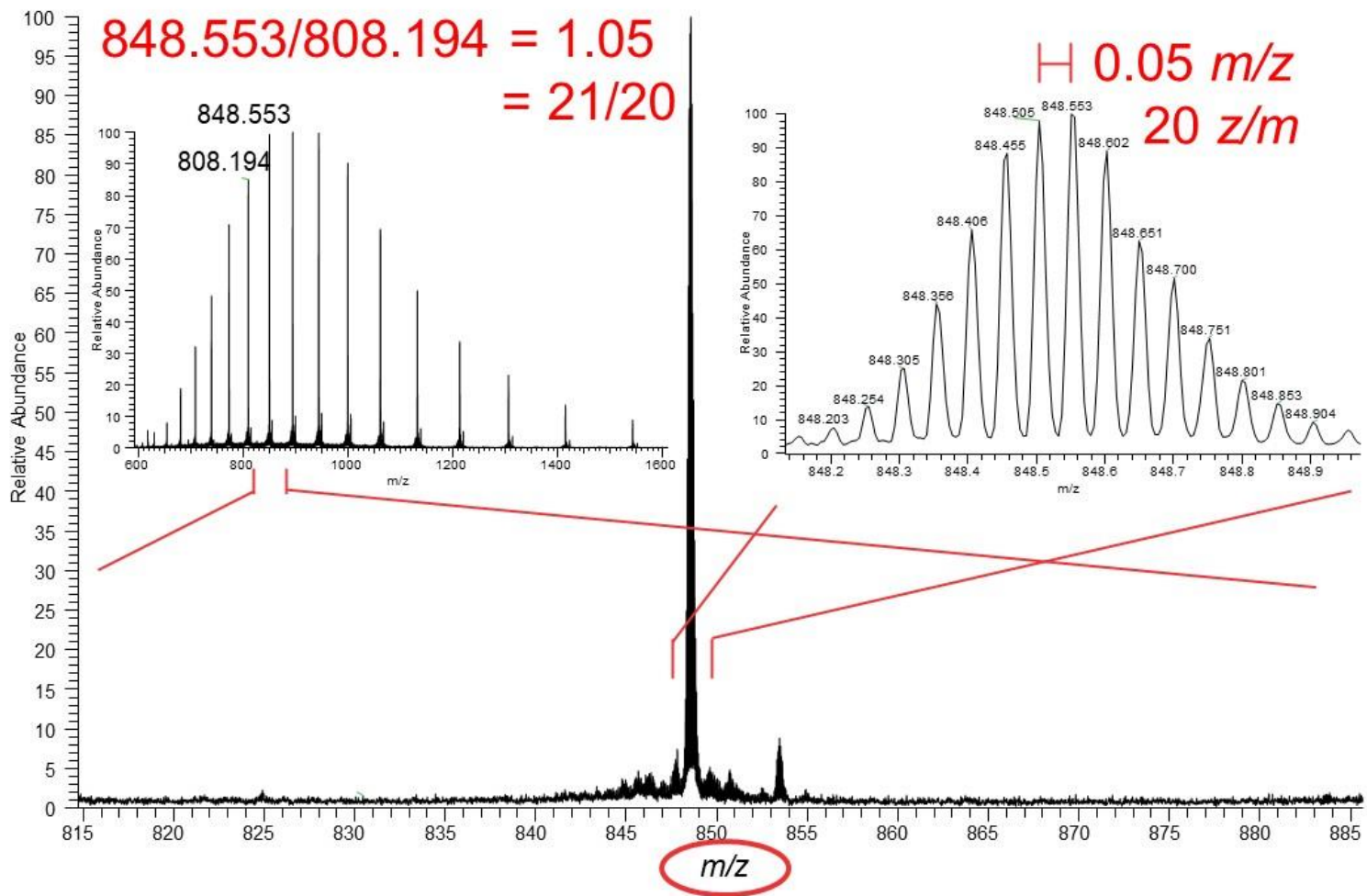


všichni se správnou odpovědí  
budou odměněni

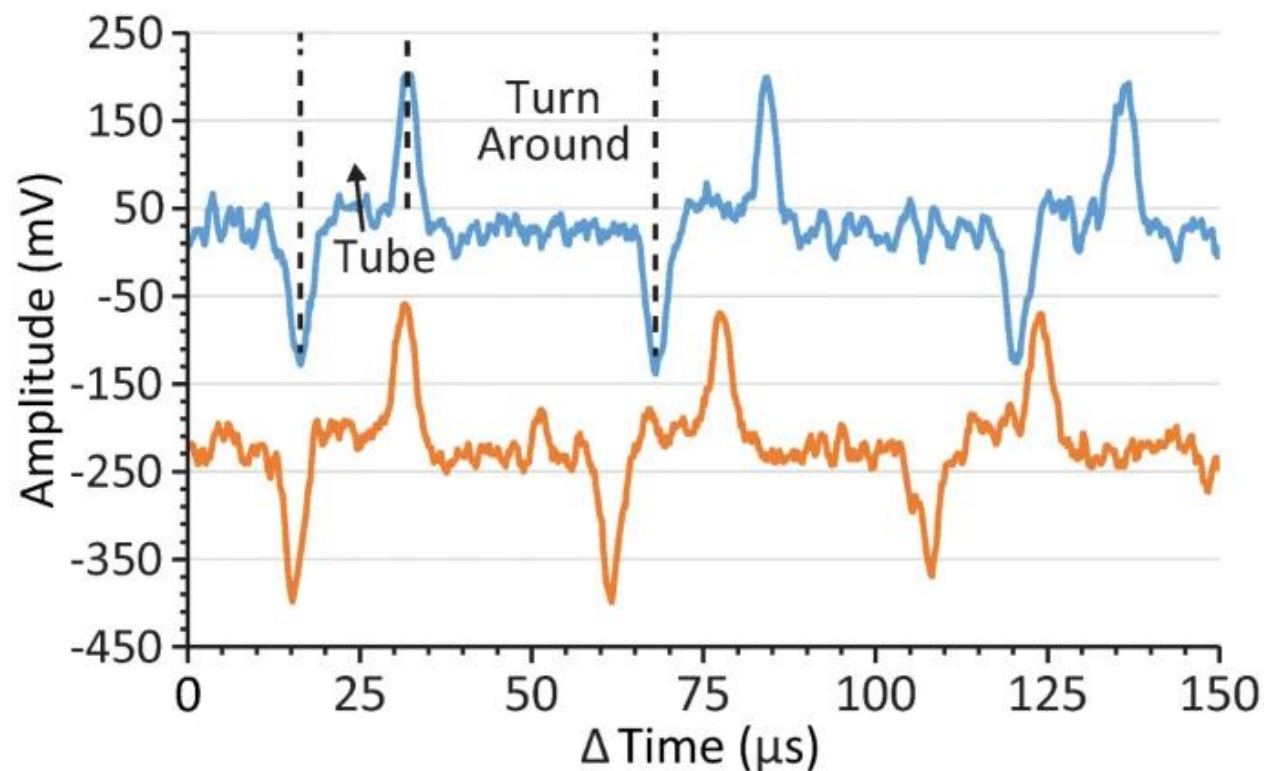
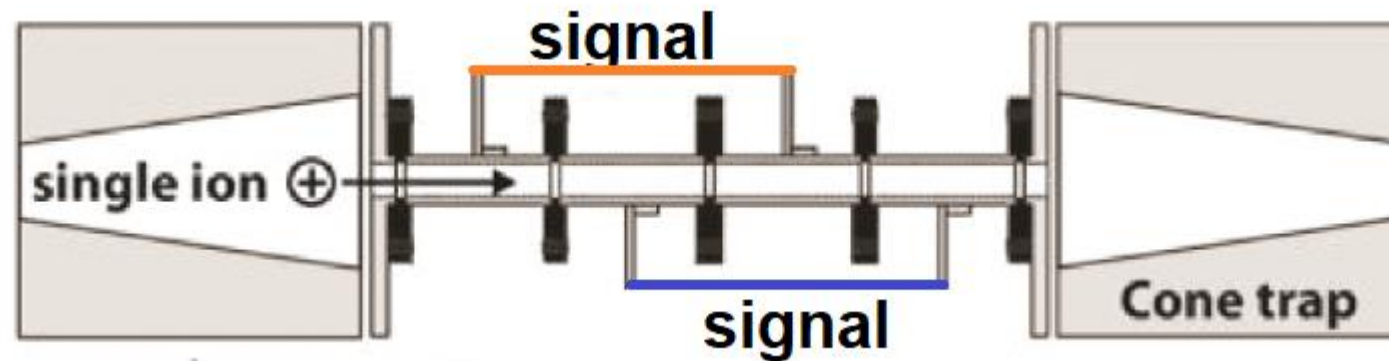
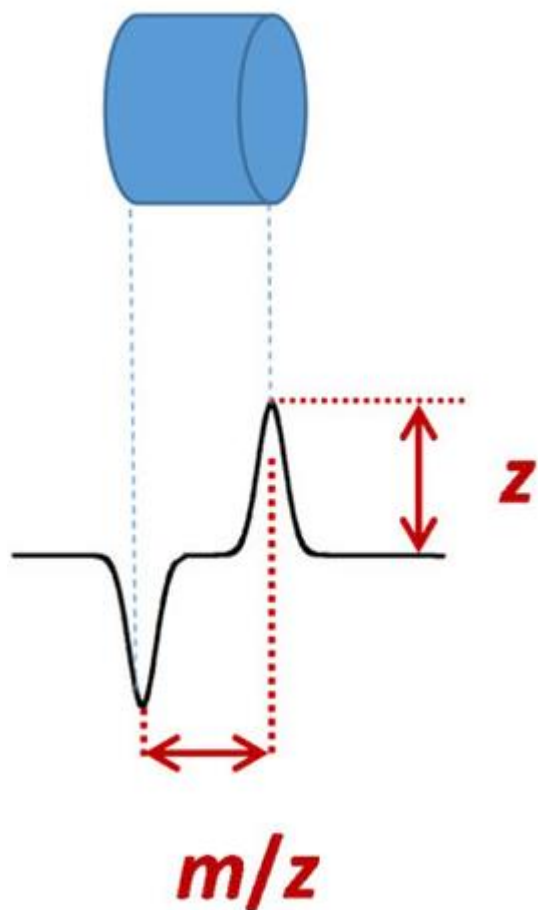




# Charge Detection Mass Spectrometry (Direct Mass)

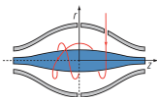


# Charge Detection Mass Spectrometry (Direct Mass)

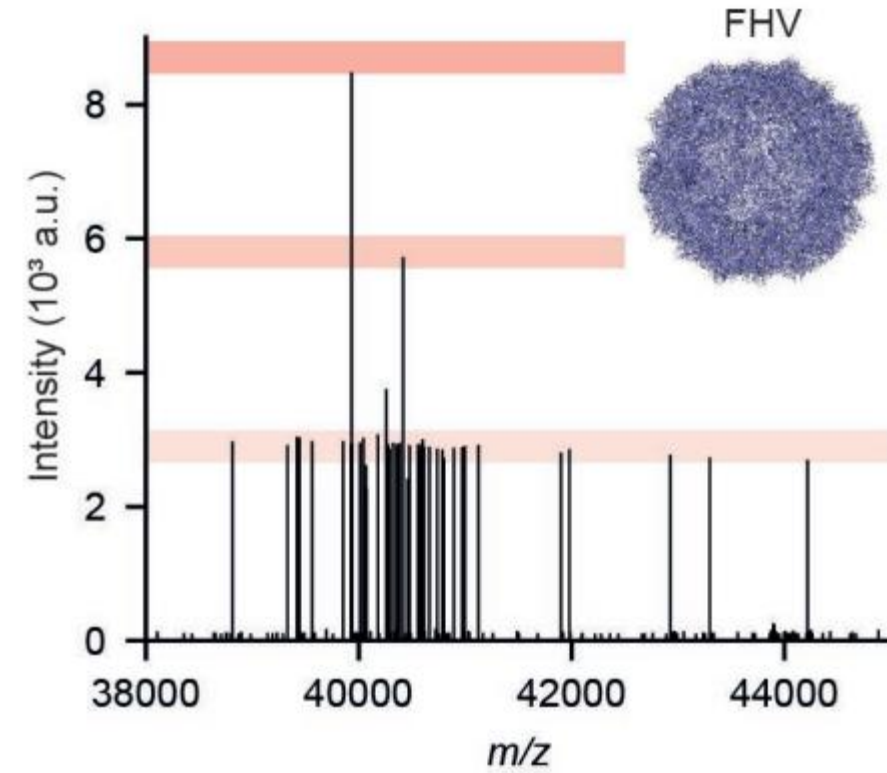
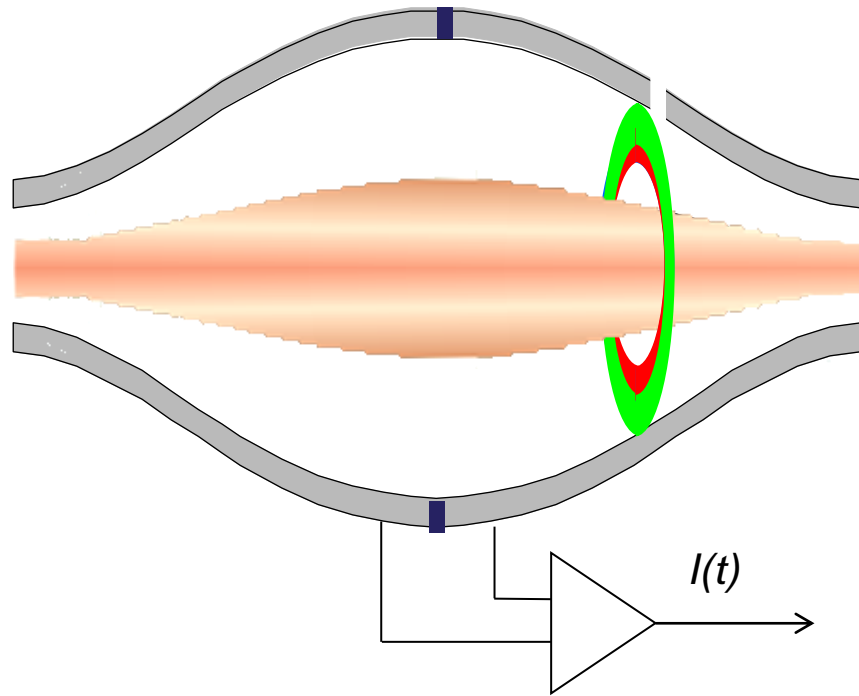


<http://dx.doi.org/10.1002/rcm.8204>

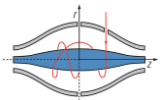
<https://doi.org/10.1016/j.ijms.2017.01.007>



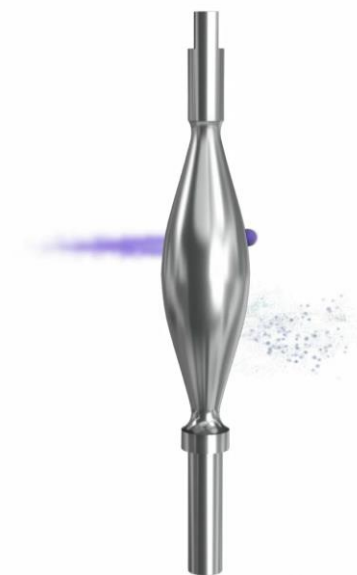
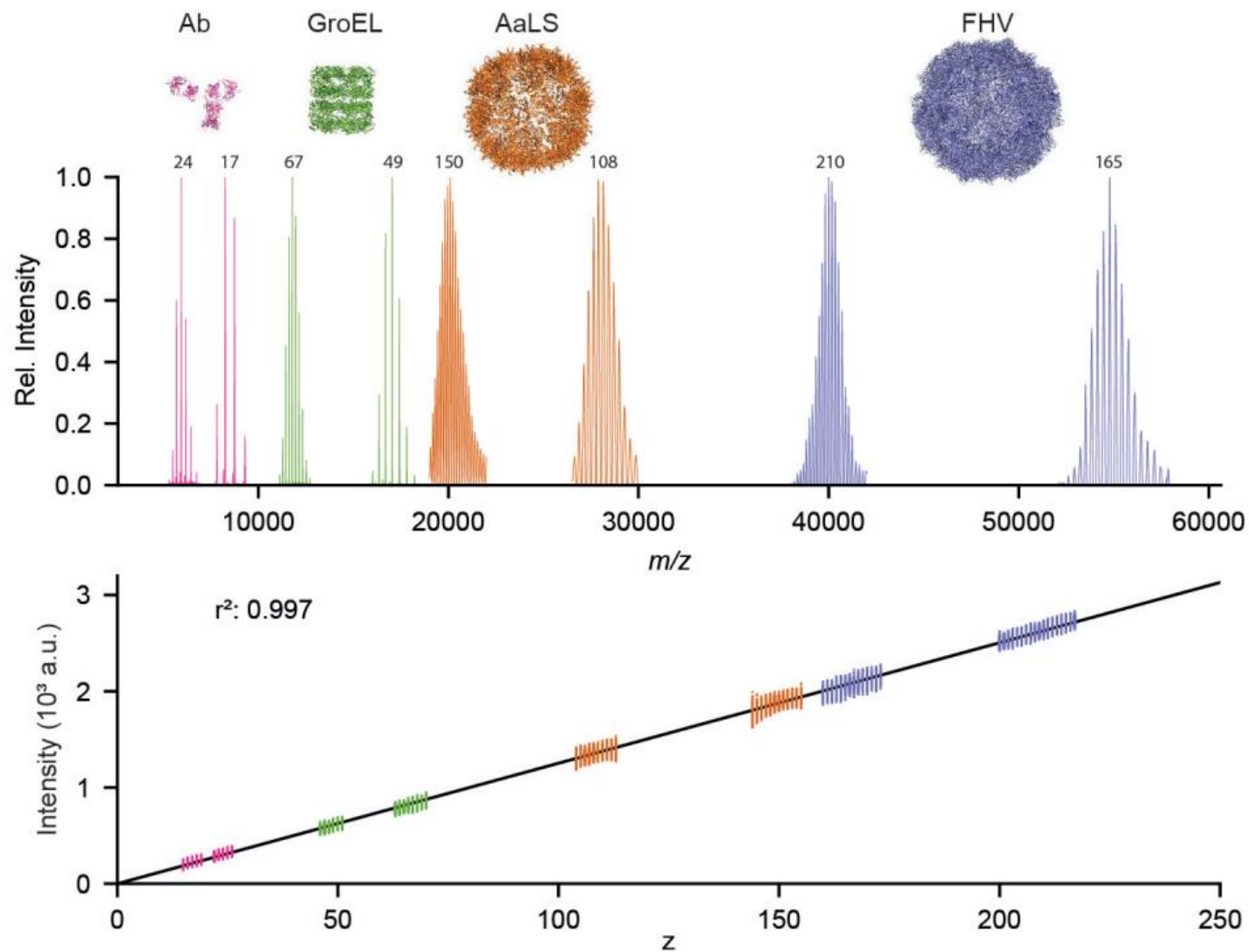
# Charge Detection Mass Spectrometry (Direct Mass)



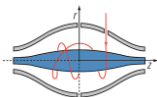
<https://www.nature.com/articles/s41592-020-0770-7>



# Charge Detection Mass Spectrometry (Direct Mass)

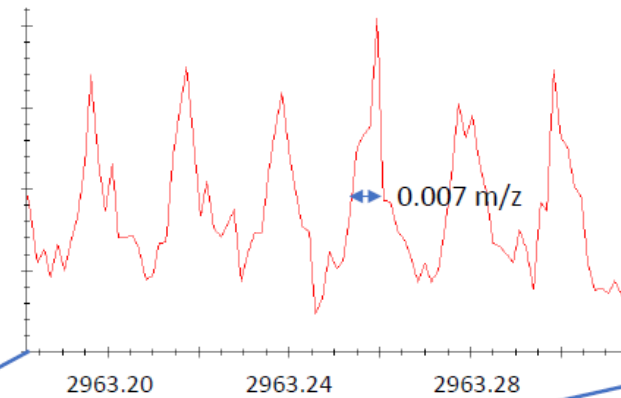
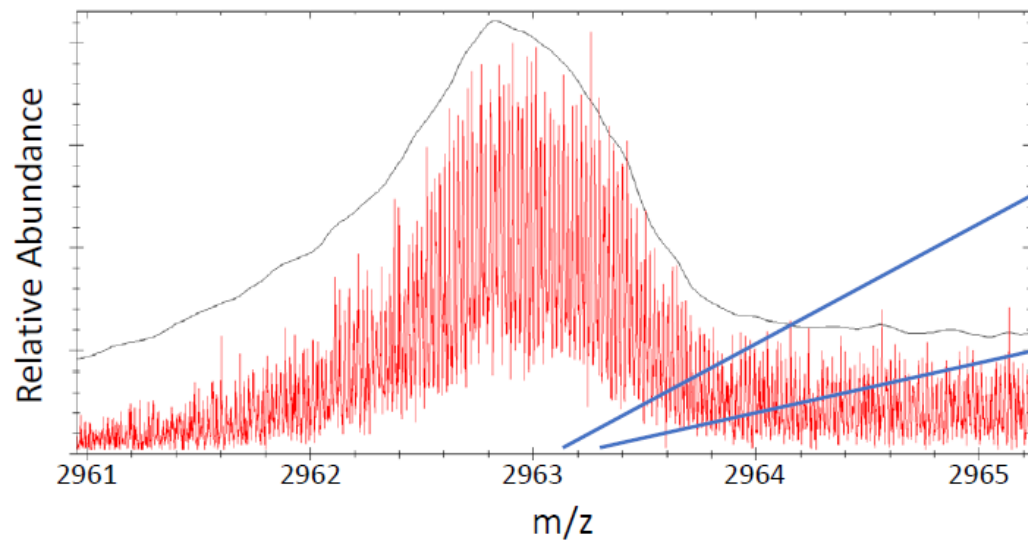


<https://www.nature.com/articles/s41592-020-0770-7>



# Charge Detection Mass Spectrometry (Direct Mass)

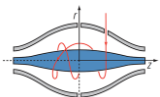
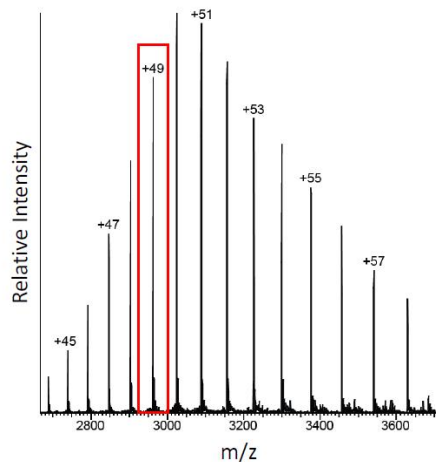
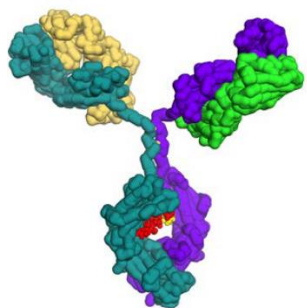
Instrumental Resolution: 120,000 @ 200 m/z  
Collection Time: 13 hours  
Scans: ~150,000



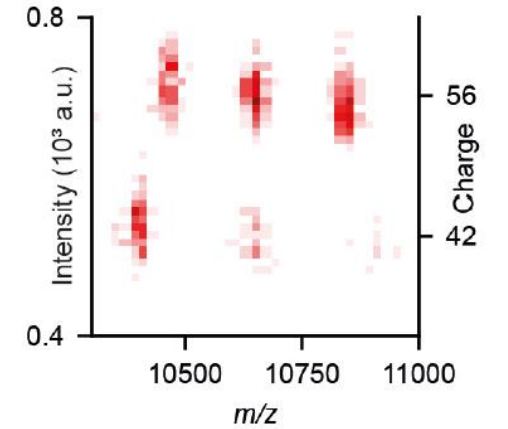
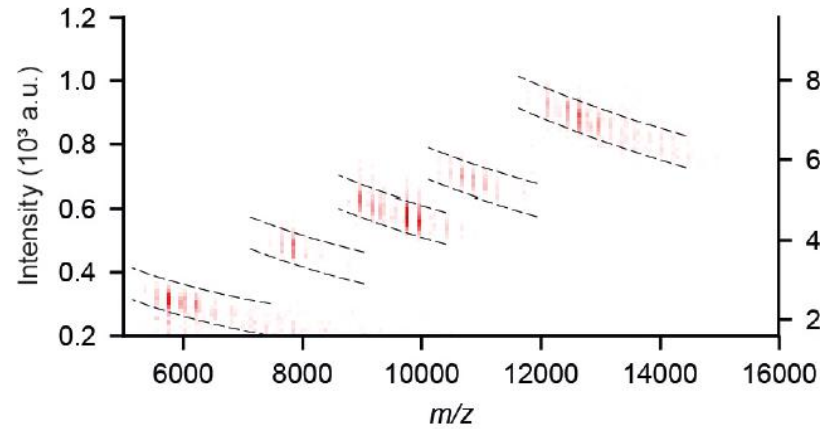
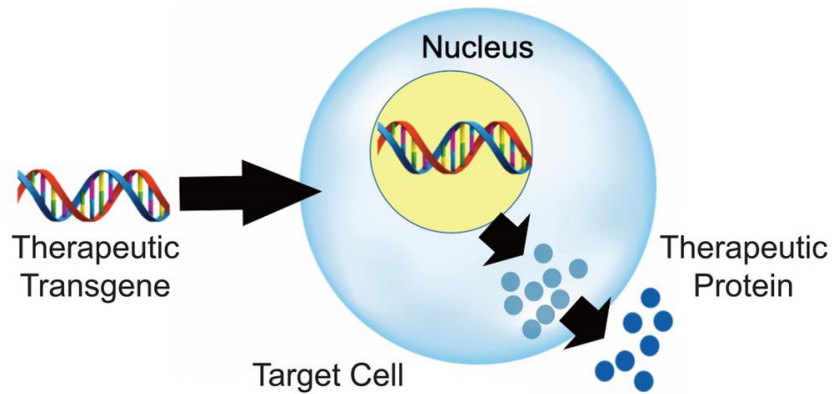
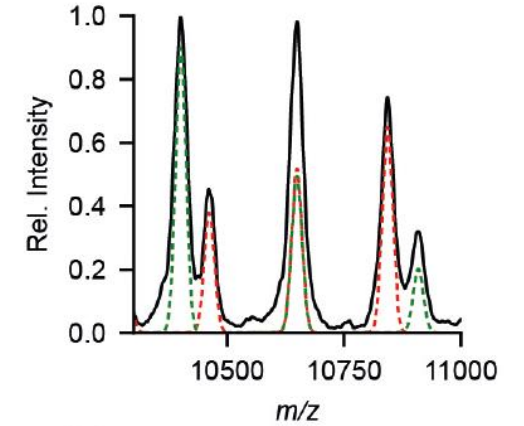
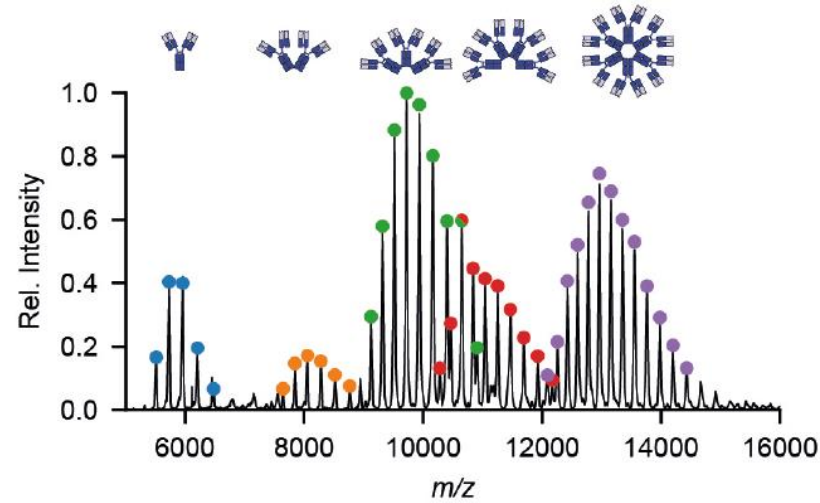
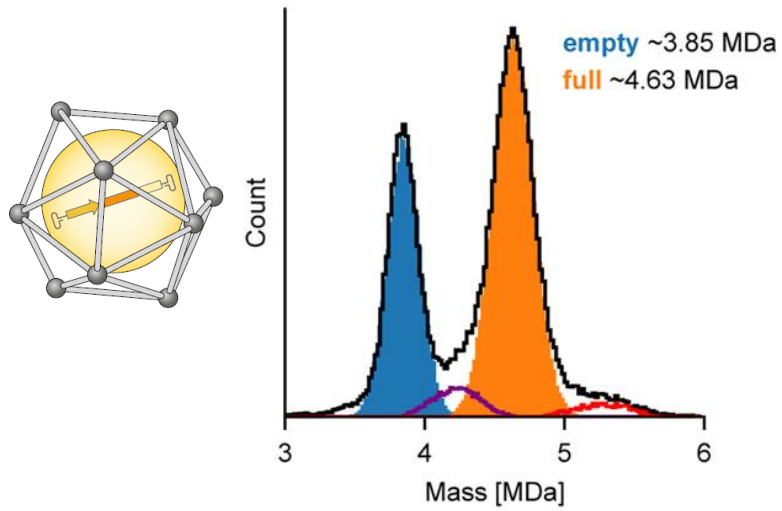
Resolution  
423,000 @ 2963 m/z  
1,629,000 @ 200 m/z

Mass Accuracy  
2.36 ppm

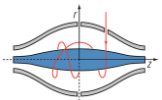
**14x** resolution increase



# Charge Detection Mass Spectrometry (Direct Mass)



<https://doi.org/10.1016/j.omtm.2021.11.013>



# Současné orbitální pasti



(Q) EXACTIVE



Q EXACTIVE HF



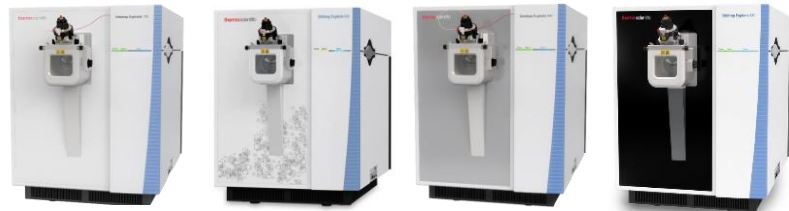
ORBITRAP FUSION



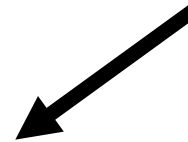
QE FOCUS  
QE PLUS



QE HF-X



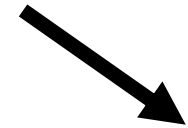
EXPLORIS (120/MX/240/480)



IQ-X



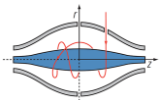
LUMOS



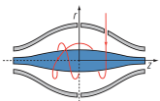
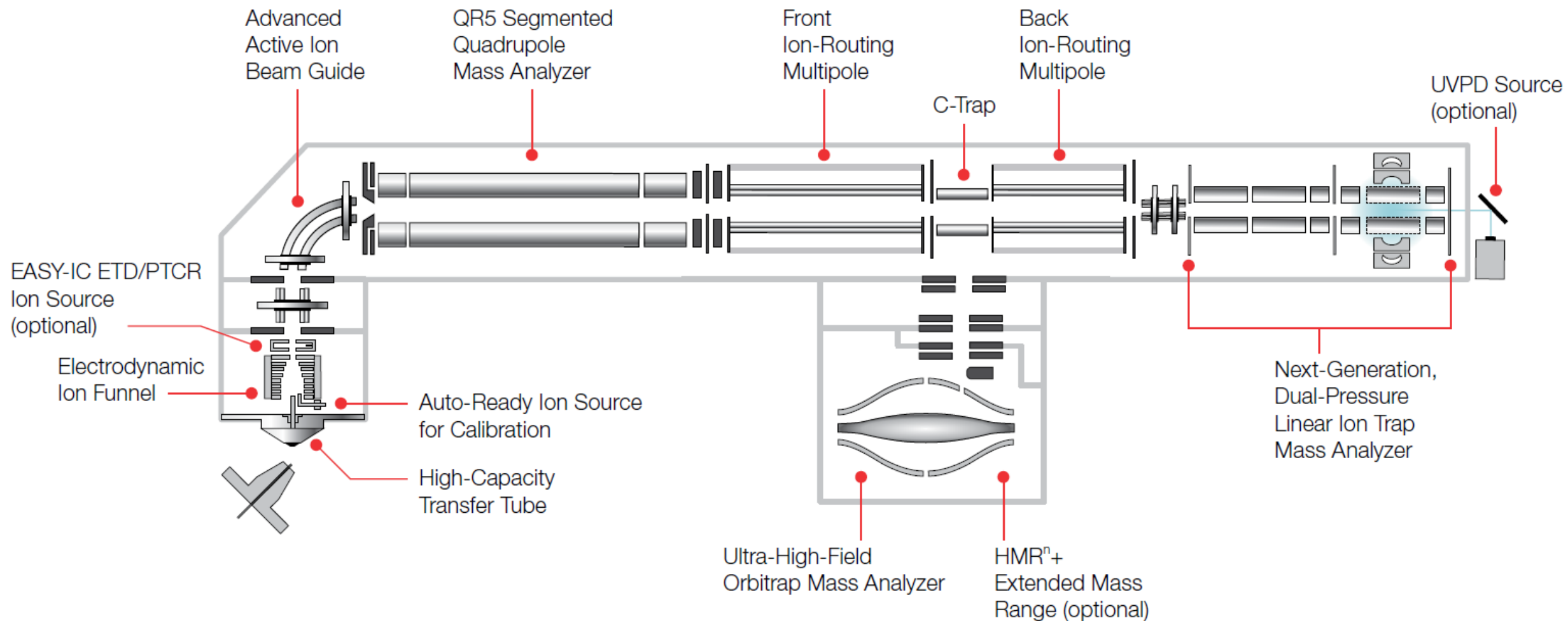
ECLIPSE



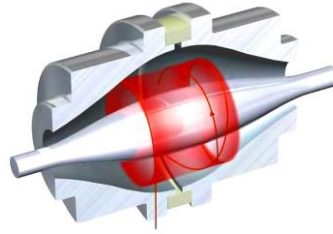
ASCEND



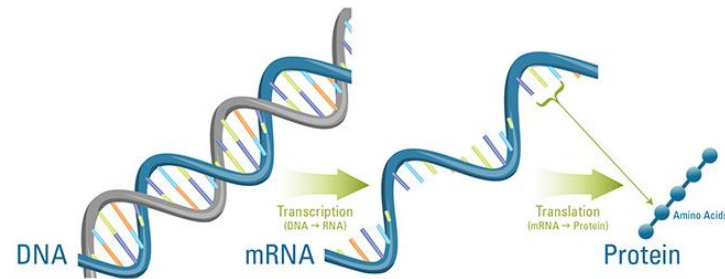
# Orbitrap Ascend







potenciál k masivní expanzi HRMS do analýz v genové terapii



[www.pragolab.cz](http://www.pragolab.cz)



[linkedin.com/company/pragolab-s-r-o-](https://www.linkedin.com/company/pragolab-s-r-o-)

