

Short overview: Innovation Therapeutics and Translation

Current status of research, impact and gaps to be filled in the area of therapeutics

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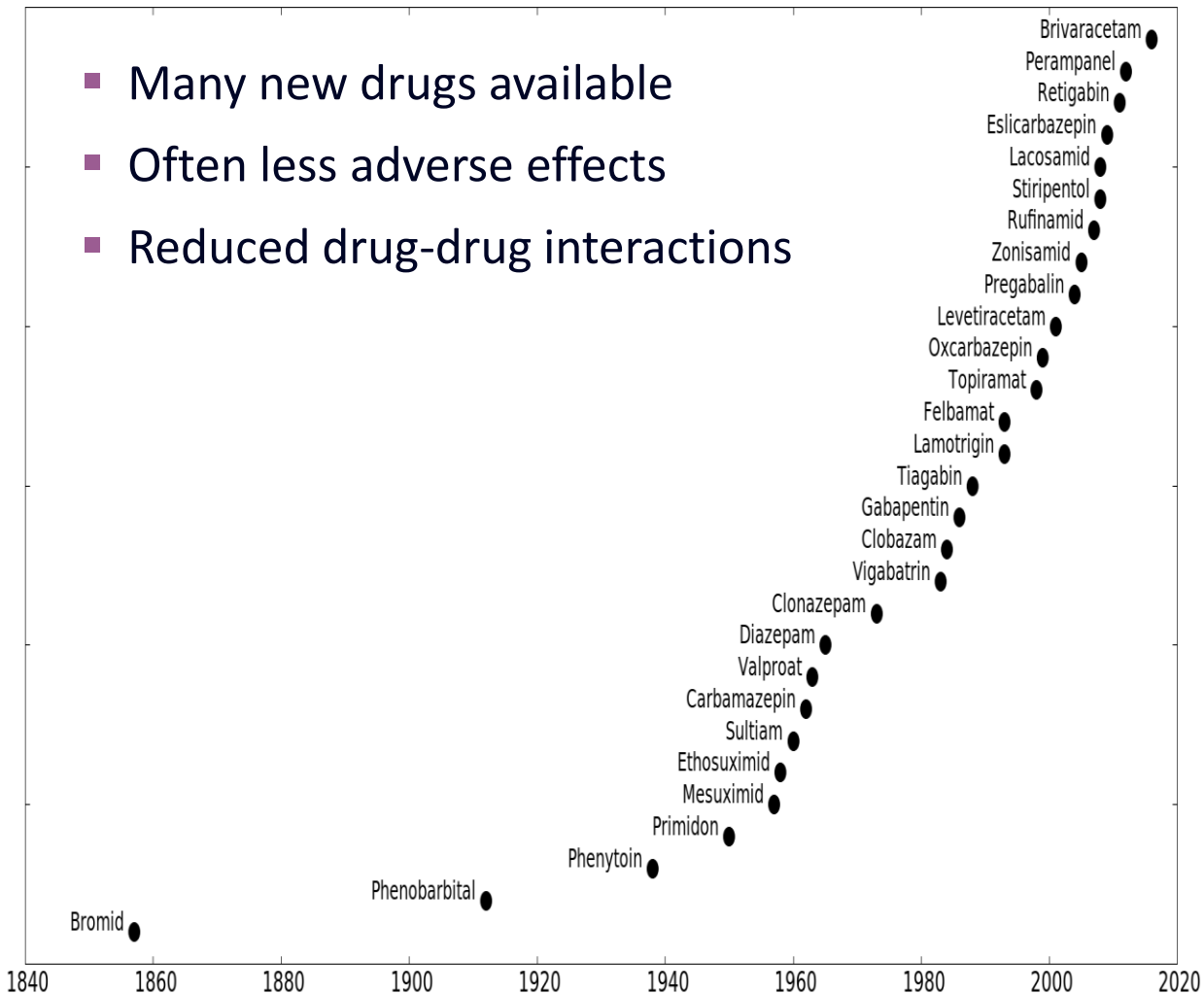
Therapeutics: Aims and gaps

- More seizure free patients living a self-determined life of normal quality and social participation
 - **Better understanding mechanisms of ictogenesis and epileptogenesis**
- Increase efficacy and tolerability of therapy
 - **Novel disease-modifying treatment strategies**
- Reduce morbidity and mortality in epilepsy patients
 - **Novel personalised treatment strategies**
- Reduce stigma
 - **Collaboration with social science research**

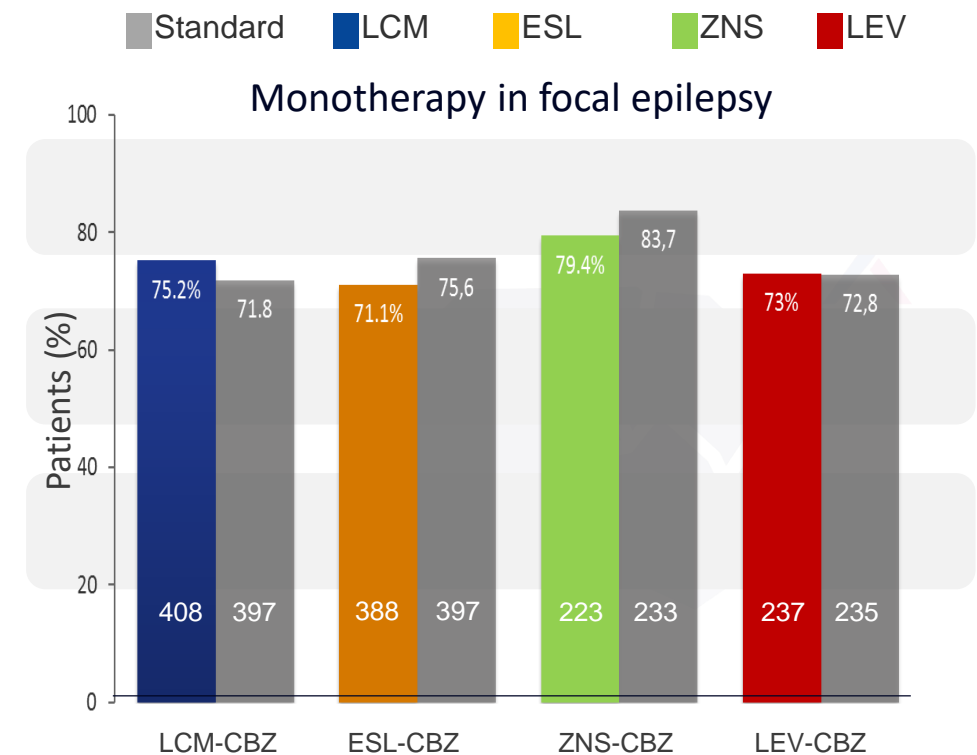


Therapies: Successes & challenges

- Many new drugs available
- Often less adverse effects
- Reduced drug-drug interactions



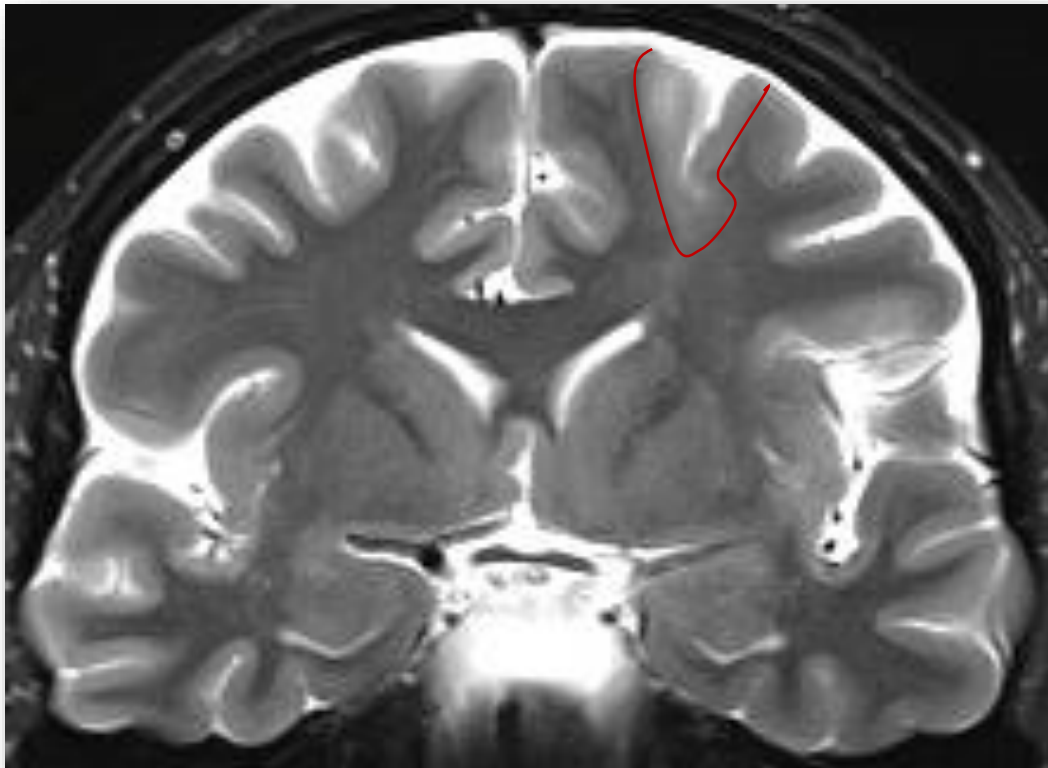
- Efficacy unimproved
- Only seizure suppressive



Cure & disease modification incomplete in rare cases

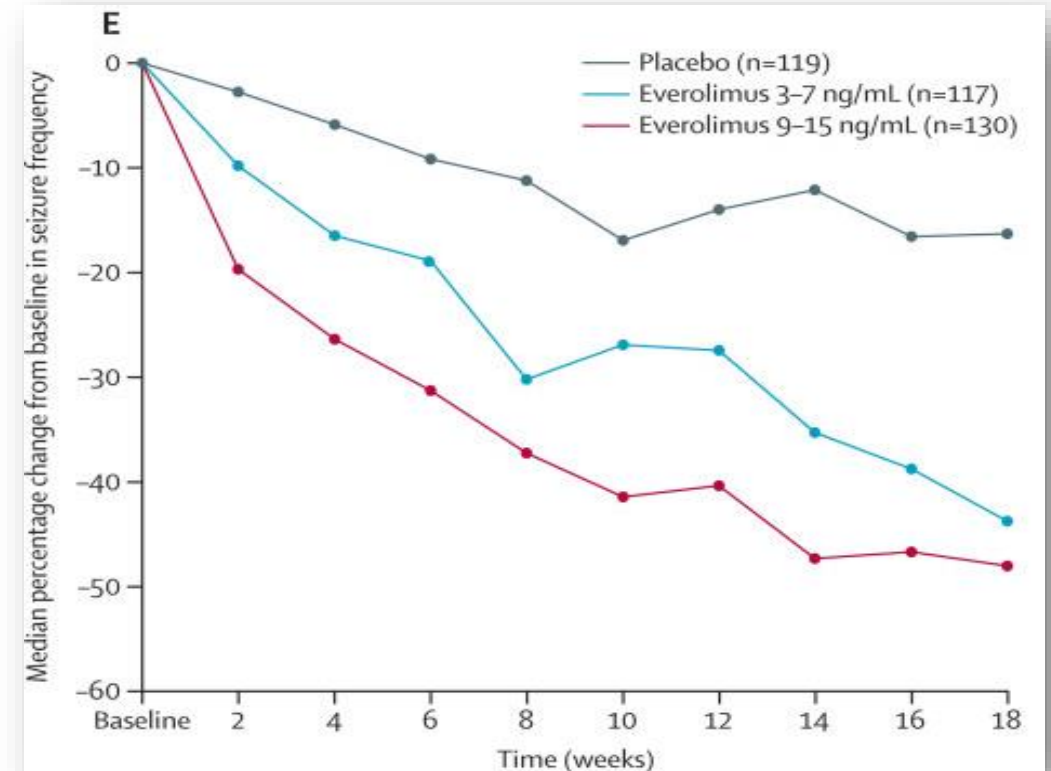
Personalised approaches more successful

- Epilepsy surgery



70% seizure-freedom

- mTOR-Inhibition as adjunctive therapy in tuberous sclerosis



French JA, et al. Lancet. 2016;388:2153

Current status of research and impact

- Epileptic encephalopathies: Monogenic causes /potential treatment targets in 25+% of patients
- Preventive treatment strategies emerging
- Novel screening designs, multitargeted drug combinations
- Understanding epigenetic control: MicroRNA as novel target
- Other novel targets e.g. neuropeptides
- Tissue modification (gene- & cell therapy, chemo- & optogenetics)
- Less invasive tissue resection/deactivation (SLTA, HIFU?)

How to fill the translational gaps?

- Close cooperation between experimental and clinical researchers – as lived by the EU-funded consortia here today
- Better phenotyping, biomarkers and stratification on risks
- Data sharing, databases, multicenter & multidisciplinary studies
- Long-term project-funding for bedside-to-bench and back translational approaches
- Epilepsy on agenda: Get industry involved (European Innovative Medicines Initiative - IMI) – or start-up (spinn-off)!
- More models on pharmacoresistance