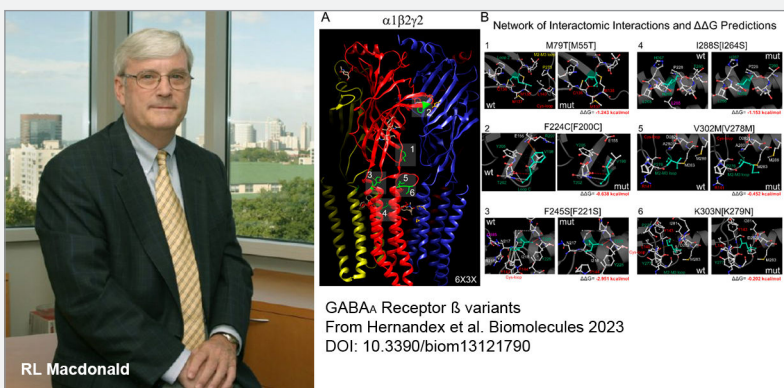


2010s

2010

BIOMEDICAL MILESTONES



ANA President in 2010 & '11, R.L. Macdonald advanced research into the transcription, translation, folding, assembly, trafficking, pharmacology and electrophysiology properties of GABA_A receptors, both in native and mutant forms associated with genetic epilepsy.

2011

BIOMEDICAL MILESTONES

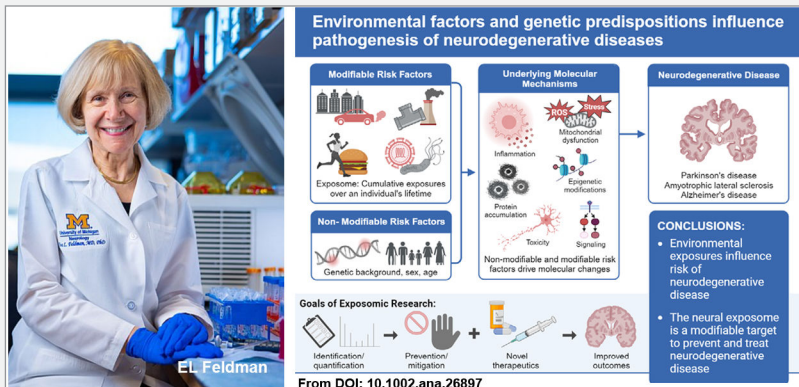
The concept of "Precision Medicine" proposed by the National Research Council becomes widely adopted.

HISTORICAL CONTEXT

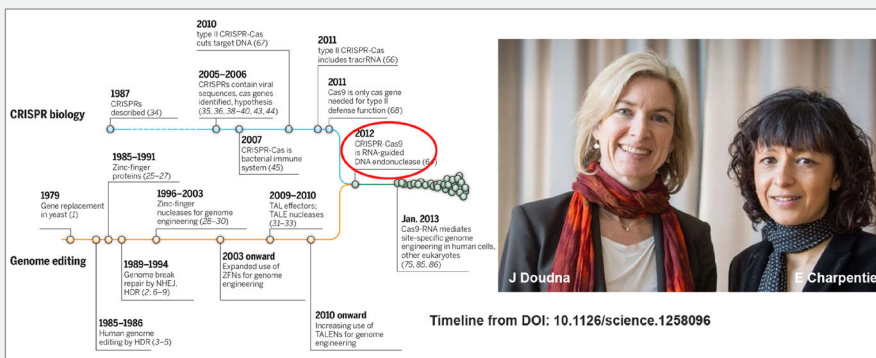
Occupy Wall Street voices growing opposition to wealth imbalance.

HISTORICAL CONTEXT

- ANA President in 2012 & '13, E.L. Feldman broadened membership, setting modern trajectory of the Association. She is internationally recognized for pioneering research in neurodegenerative diseases (ALS, Alzheimer's disease), diabetic neuropathy, and neurological complications of diabetes and obesity.



- Charpentier and Doudna merge decades of gene editing research to identify CRISPR-Cas9 as a programmable gene editor. They receive the Nobel prize in 2020.



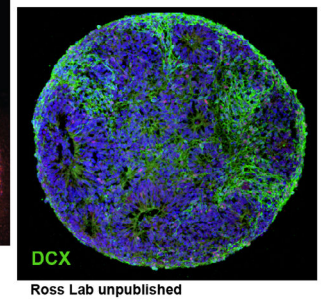
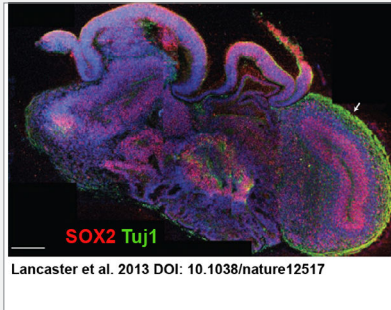
HISTORICAL CONTEXT

Higgs boson particle detected using Hadron Collider.

2013

BIOMEDICAL MILESTONES

- First 3D brain organoid protocol using human stem cells published by Lancaster and Knoblich. Multiple protocols followed to model cerebral cortex, ventral forebrain, cerebellum, spinal cord.
- Clinical exome sequencing of patient-parent trios revolutionizes genetic diagnosis.

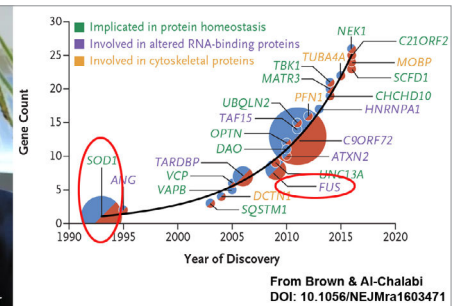


- NIH funded Clinical Genome Resource (ClinGen) established to build a central resource for defining clinical relevance of genes and variants.

2014

BIOMEDICAL MILESTONES

- M. Raichle receives the Kavli Award for pioneering fMRI of CBF and CNS O2 consumption.
- ANA President in 2014 & '15, R.H. Brown, Jr. led the team identifying SOD1 in 1993 and FUS in 2009 as causes of familial ALS (FALS). SOD1 was the first gene to be linked to FALS, a landmark in neurogenetics that shaped subsequent research into ALS causes and treatment.



2015

BIOMEDICAL MILESTONES

- The Alzheimer’s Disease Neuroimaging Initiative (ADNI) expands early biomarker research for AD.
- Five landmark clinical trials report the benefits of endovascular thrombectomy in select patients diagnosed with acute ischemic stroke up to 6 hours from the onset of symptoms.

HISTORICAL CONTEXT


Open AI founded, leading to ChatGPT.

Sandy Hook Elementary shooting kills 20 children, renews national gun control debate.

2016

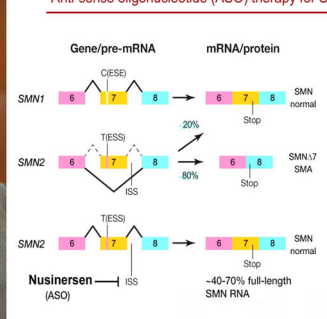
BIOMEDICAL MILESTONES

FDA approves Nusinersin ASO for Spinal Muscular Atrophy (SMA), lifesaving treatment for “childhood ALS”.



AR Krainer

Anti-sense oligonucleotide (ASO) therapy for SMA due to SMN1 mutation



- ASO targets intronic splicing silencer ISS-N1 to promote exon 7 inclusion
- Increases production of full length SMN1 protein from the SMN2 locus
- Presymptomatic treatment of infants dramatically improves outcomes
- intronic splicing silencer ISS-N1 first reported in 2006: Singh et al., *Mol Cell Biol* 26: 1333
- FDA approved human therapy in Dec. 2016

HISTORICAL CONTEXT

UK referendum votes to exit the EU. Brexit completed in 2020.

DJT wins first term as US President 45.

2017

BIOMEDICAL MILESTONES

- ANA President in 2016 & '17, B.G. Vickrey has pioneered the design, implementation, and rigorous testing of team-based, coordinated care delivery models for dementia and Parkinson's disease, showing substantial beneficial impact on quality of care and outcomes. This has led to changes in healthcare financing policies for dementia and other chronic neurological conditions to achieve equity in neurological care.
- First CAR-T cancer therapy delivered.



BG Vickrey

HISTORICAL CONTEXT

Half the world's population achieves access the Internet.

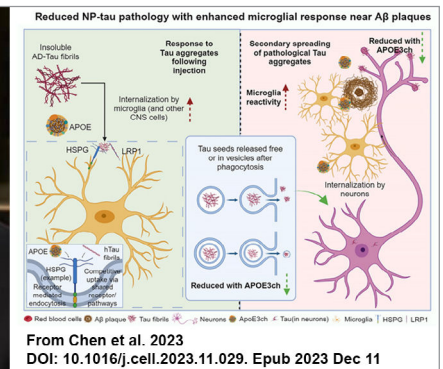
2018

BIOMEDICAL MILESTONES

- FDA approves transcranial magnetic stimulation (TMS) for treatment of OCD.
- ANA President in 2018 & '19, D.M. Holtzman has illuminated why APOE is the most important genetic risk factor for Alzheimer's disease (AD). This includes effects of APOE on Aβ accumulation and on the innate and adaptive immune response to influence amyloid-induced tauopathy and tau-mediated degeneration, portending new treatment strategies.



DM Holtzman



- DAWN and DEFUSE clinical trials used advanced imaging to show that endovascular thrombectomy can be effective for patients with acute ischemic stroke up to 24 hours from the onset of symptoms.

2019

BIOMEDICAL MILESTONES

Early salvos of COVID-19 Global Pandemic 12/2019-5/2023.

HISTORICAL CONTEXT

Fire breaks out in
Notre Dame cathedral.

