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|  Potential DRUGtreatment | EFFECT | STATUS | APBDRF CONSIDERATION | WHO’S ON IT |
| Antisense approach: * ASOs mediated degradation of targeted mRNA by RNaseH.
* ASO mediated correction of mRNA splicing
 | * Decreases glycogen synthase -by targeting GS and PTG.
* Corrects intronic mutation in compound heterozygote patients, Same mechanism as FDA approved -Spinraza for SMA 4/2017-
 | Animal model proof of concept research completed for APBD and Lafora -Ionis buildingHumanized GS mouse model Dr Akman building mouse model and proof of concept research | Be prepared with patient population should Ionis decide to move forward Received Penn Med grant | Ionis Pharma/Dr. Minassian is preparing manuscript Ionis Pharma Dr. Akman  |
| TGM5 | Stabilize existing p.Y329S GBE protein | Will be included in clinical trials in Hadassah. Paper submitted to J Lipid Res is being revised for resubmission | Seeking regulatory guidance for US trial | Drs. Escriba, Kakhlon, Caraco, LossosLipopharma BEGA |
| Guaiacol | Decrease glycogen synthase activity | publication expected in a few months/Will be included in clinical trials in Hadassah | Seeking regulatory guidance | Drs. Akman, Yue, Kakhlon, Escriba, Lossos, Caraco/BEGAOn cures within reach platform |
| Ibudilast/ Guaifenesin | Decreases glycogen or glycogen synthase activity | Dr. Akman proof of concept animal model research | Seeking regulatory guidance | Dr. Akman/ Received Penn Med grant |
| Triheptanoin | Alternative energy source or stabilizer of GBE with p.Y329S. | Clinical trial ended 12/15Safety confirmed | Study unblinded 2016, efficacy is inconclusive | Dr. SchiffmanUltragenyx |
| PMI Small Molecule Screening Project  | High content Screening multi-parametric analysis of skin fibroblasts from APBD and Lafora patients- This work is part of the generation of the APBD biobank - we believe that this inclusive biobank is crucial for personalizing APBD therapy | Mouse studies in progress. Paper is submitted to Biochem J is being revised for resubmission | Received Israel Ministry of Science grant | Prof Weil, / Dr. Kakhlon |
| Peptide (LTKE)-Pharmacophore project | Stabilizes existing GBE with p.Y329S by FDA approved molecular mimics of the LTKE peptide in patient derived PBMC cells. Looking for significant improvement of GBE activity. There are 22 more molecules to test | Pharmacophore candidates being tested  | IsrAPBDf and the APBDRF supporting Dr. Kakhlon’s salary | Dr. KakhlonDr. YuePepticomProf.Goldblum |
| LTKE Peptide project | Stabilization of GBE p.Y329S | Effect in cells published in 2015. Awaiting funding for tests in mice | Looking for funding to test in mice. Proof of concept in cells already published in 2015 | Dr KakhlonDr YuePepticomProf. Goldblum |
| Other research assets | Columbia APBD Registry CAP, NORD/APBDRF Natural History Study Registry (FAN), APBD Biobank skin fibroblasts |  |  | Columbia University PI Dr. DiMauro/ NORD/ Dr. Kakhlon |