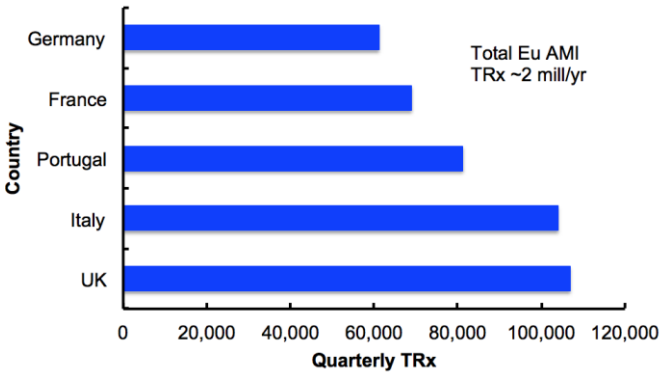
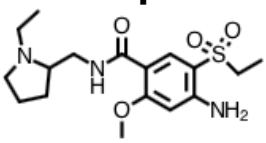
LB Pharmaceuticals is a NY-based biotech company focused on improving existing CNS drugs. LB is developing LB-102, a novel drug to treat schizophrenia.

Schizophrenia (SCZ) is a debilitating disease affecting 3 million Americans. Even with > a dozen approved drugs, 60% of SCZ patients are inadequately treated. Suicide risk, ~1 in 10, a serious concern as is poor QOL.

LB-102 is a novel potential treatment for SCZ based on **Amisulpride**, a drug used in Europe since the 80s.

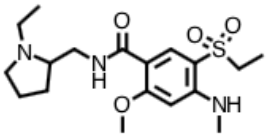


Amisulpride



MW = 369.5
cLogP = 3.94

LB-102



MW = 383.5
cLogP = 4.41

- **Amisulpride** as effective as leading drugs Olanzapine and Risperidone with a more favorable AE profile
- Amisulpride suffers from poor BBB penetration, limiting efficacy. **LB-102** was designed to improve BBB permeability by increasing lipophilicity
- **Strong revenue potential.** Assuming EU % TRx tracks in US (~60 m TRx for SCZ/yr) could easily get to **$1B+/yr revenue** (Brexpiprazole and Cariprazine approved 2 years ago, are on $700 mill and $400 mill run rates) protected by patents valid until 2037

Preclinical studies show LB-102 has efficacy **equivalent to or better than** Amisulpride

- Similar PK profile amenable to oral dosing
- Similar CNS receptor binding profile *in vitro*
- Similar to better $D_{2/3}$ receptor occupancy *in vivo*
- Similar NOR (cognitive aspects of SCZ) and AIC (positive aspects of SCZ) rodent assays, superior in LMA (positive aspects of SCZ) assay
- Same MTD in initial rat toxicology study
- Data presented at 2017 ECNP meeting (*European Neuropsychopharmacology*, 2017, *27 (S4)*, S922-S923)

LB-102 is chemically similar to Amisulpride and behaves biologically like Amisulpride

Path forward

- IND-enabling studies underway and could be complete in less than 1 yr (positive pre-IND meeting with FDA held in January 2018)
- Clinical plan includes potential POC studies in P1 and/or P2a (could read out <2-3 years)
- Seeking $4 million to get to IND

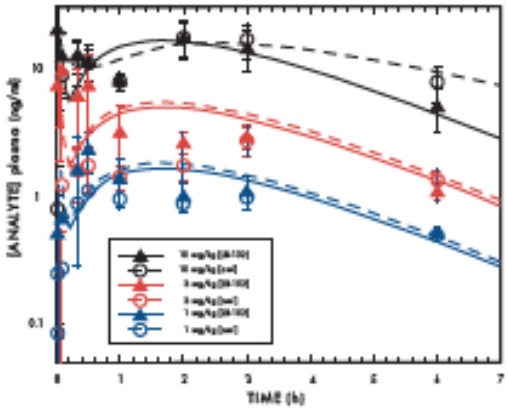
Opportunity

- **Derisked**: chemical structure, *in vitro* and *in vivo* properties, match a safe/effective SCZ drug
- Well-established path to **FDA approval**
- **Strong IP**: composition patents filed
- **High revenue potential:** modest pricing/Rx assumptions afford $billion+ annual revenue

LB-102 is a novel, low risk, potential SCZ drug with high revenue potential

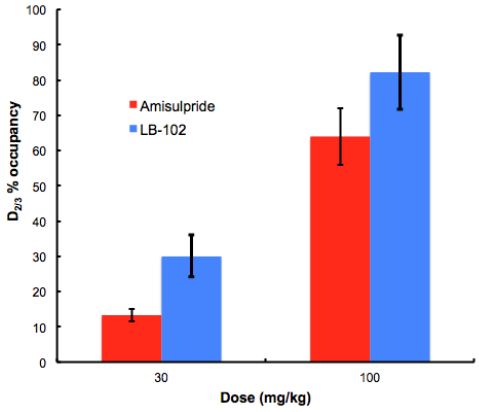
LB-102 supporting data

Equivalent rodent PK, supports PO dosing



Pharmacokinetics p.o. dosing of rats (3/grp) LB-102.

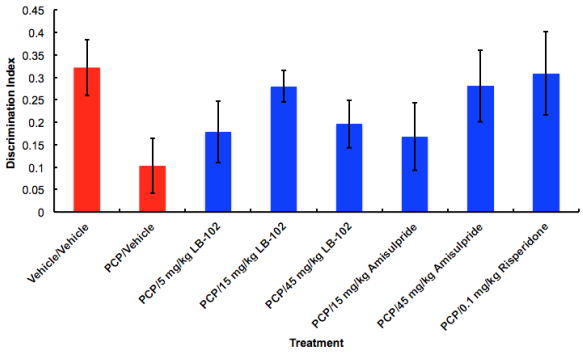
Equivalent/superior *in vivo* D2/3 %RO



$D_{2/3}$ receptor occupancy: p.o. dosing of rats (9/grp) LB-102/Amisulpride at 12 h.

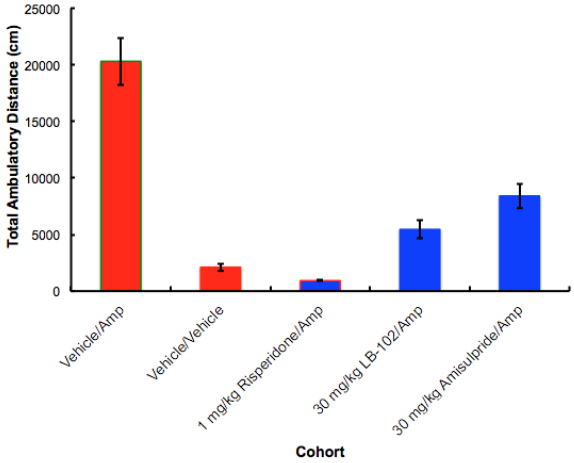
$$\% \text{ occupancy} = 100 \frac{\text{Striatum/Cerebellum dosed -1}}{\text{Striatum/Cerebellum vehicle -1}}$$

Equivalent in NOR (cog aspect of SCZ)

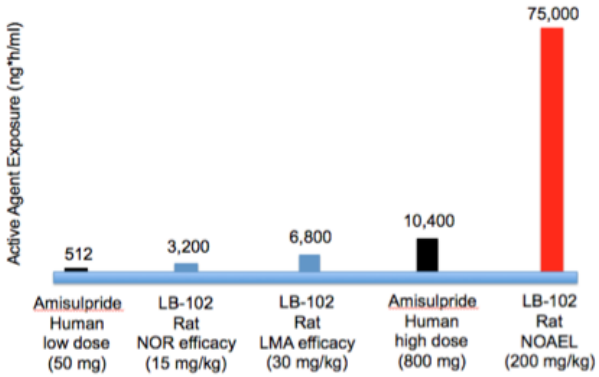


NOR Discrimination index (time spent exploring novel – time spent exploring familiar/total exploration time) data from a sub-chronic PCP NOR study in (10/grp) measured 60-180 min post dosing.

Superior in LMA (+ve aspect of SCZ)



LMA Total Ambulatory Distance data from an amphetamine induced LMA rat study (10/grp) measured 6 h post-dose amphetamine dose over the course of an hour. 30 mg/kg LB-102 was statistically superior to 30 mg/kg Amisulpride ($p < 0.05$).



Translation to the Clinic

LB-102 provides efficacy in rat and mouse behavioral studies consistent with Amisulpride exposure known to provide clinical efficacy. Clinical dose selection will be guided by animal efficacy and receptor occupancy studies (ongoing) and Amisulpride human dosing.