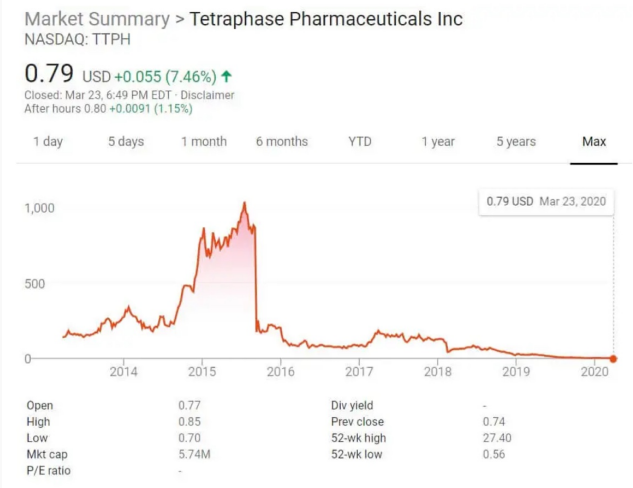
AMR Solutions Blog- Dr. John Rex

We learned about a week ago that Tetraphase, despite having brought an antibacterial (eravacycline) to approval, has been sold for stock worth $14.4m (plus a potential $12.5m more if aggressive sales targets are achieved). The buyer is AcelRx (link), a public company with one FDA-approved sublingual pain drug on the market. Make no mistake about it, this is **functionally a wipeout for Tetraphase investors.** This is yet another lesson in antibacterial economics that needs to be reviewed and understood by the entire community. Let's take it in steps.

Start with the numbers that are available from the 31 Dec 2019 10-K filed by Tetraphase with the securities and exchange commission (link):

- The company appears to have raised and spent more than $604m since inception (Accumulated Deficit, page 74)
- The company had $21m in cash on 31 Dec 2019 (Cash Equivalents, page 74)
- The company was spending ~$70m/year in R&D and SG&A (Selling, General, and Administrative, page 75) – let's round that to $6m/month
- The company had income of $3m in 2019 from sales of Xerava (eravacycline), which was approved by the FDA on 27 August 2018
- The company raised an additional $17.5m during Jan 2020 (link) (note how dramatically the valuation dropped even since the January raise)
- Unlike Melinta, Tetraphase had no long-term debt other than leases.

So, if we assume Tetraphase spent $15m (2.5 months x $6m/month) since 1 Jan 2020, this consumes most of the $17.5m raised in January – and the sale for $14.4m is pretty close to cash on hand at 31 Dec 2019. Put another way, **the net value of eravacycline was close to zero in March 2020, down from a peak market capitalization of ~$1.8 billion in mid-2015.**



Above: Tetraphase share price over time from Google Finance. At the peak, the share price was > $1000 (adjusted for stock splits) and the market capitalization was ~$1.8b.

Clearly this is not good, especially when you recall that the last year has brought us the bankruptcy of Achaogen (one approved NCE antibiotic, link) and Melinta (three recently approved NCE antibiotics and one approved improvement to an older drug, link). Let's look at this from several perspectives.

Questions:

1. Was 600 million an appropriate amount to have spent on bringing eravacycline to market?
2. Why do you think eravacycline sales were so poor?
3. Eravacycline was approved for complicated intraabdominal infections (cIAI); but the clinical trials failed for complicated urinary tract infections. So the only indication was for cIAI. Yet eravacycline has activity against CRE and Acinitobacter baumanii- do you think physician precribers overlooked the value of eravacycline because the clinical trials did not study these MDR pathogens?
4. What should be done to prevent future eravacyclines?