

VIRTUAL DEVELOPMENT TO NDA: CHALLENGES AND LEARNINGS

JAMES BERNSTEIN, PH.D. LIVE OAK PHARMACEUTICAL CONSULTING, INC. TM

OM DHINGRA, PH.D. MARIUS PHARMACEUTICALS, LLC

Topics

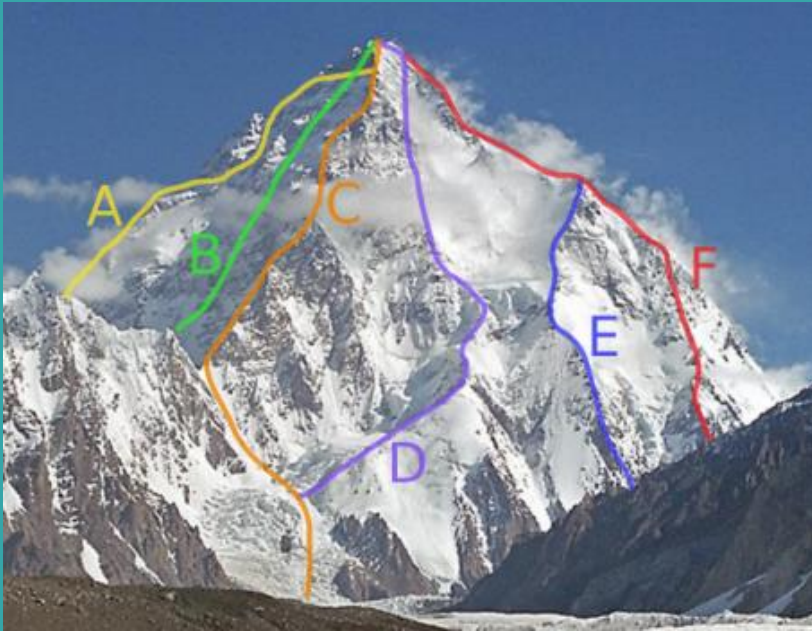
- Virtual development and progression
- Fund raising from concept to execution
- FDA interactions

VIRTUAL DEVELOPMENT PRINCIPLES

- Focus on next milestone
- Drive hard to your exit strategy
 - Even if not successful, you've laid the groundwork for next time.
- Pay attention to external environment
 - Attend AdComs, etc.
- Big names in the field are not necessary
- Need experience farming your field
 - Small and virtual pharma does not have money to waste
- The breath of exposure from large pharma is valuable



VIRTUAL DEVELOPMENT – MONEY MATTERS



- Multiple ways, each has challenges
- Use cash only where required
 - Non-clinical, clinical, CRO and CDMO
- Ask for discounts – every \$ counts
- Use equity (or options) when possible for key staff and consultants
- Drive hard to the out-licensing target to yield cash to compensate key staff and consultants
- Don't overbuild – minimize burn rate

VIRTUAL DEVELOPMENT KEYS

- It's a people business, science and phase appropriate development
- Headcount – minimize full-time, allow flex, 2-10 key persons
- Using consultants
 - None of our key consultants had less than 25 years
 - Create the fantasy team, be transparent, success comes through trust
 - Communicate, communicate, communicate
 - Always cc key team members
- Key quality is a confidence to learn
- No facilities, no offices
- Only spend where it adds value
- Choose a CRO with:
 - experience in Tx area
 - internal bioanalytical labs when possible



FUND RAISING



- Clear business plan with valuation and exit strategy
- Define exit strategy or milestones in detail
- Achieve milestones on time to build confidence with investors
- Before funding
 - Complete sufficient pre-clinical investigations
 - Establish intellectual property with patent applications
 - IP execution can become costly
- Strongly preferable to raise funds from sources familiar with biotech and pharma
- Show that you spend funds carefully
- Communicate regularly with investors

FDA INTERACTIONS

Success begins with your regulatory consultant



Focus on science



Be clear, be concise, be persistent



REGULATORY GUIDANCE: PRINCIPLES

- Establish relationship with FDA project manager
- FDA is not your advisor
- Ask concrete, meaningful questions to yield useful feedback
- Regulators see other submissions in your Tx area.
- Limit questions to current and next phase
- Be persistent: Find out if “No” means the regulator doesn’t agree or doesn’t understand.
 - Begin with a Meeting Request and briefing document, continue with email.
- Don’t let regulators force your development path if it does not make sense.
- Confirming standard guidance wastes everyone’s time



OUR REGULATORY HISTORY (12 YEARS)

- Early trials outside US
- PIND
- End of Phase 2 (before IND filed)
- Two Type C meetings
- Eleven IR's during development
- Pre-NDA clinical meeting
- Pre-NDA CMC meeting (WRO)
- Approval
- 72 filings to the IND
- 55 filings during NDA review
- About 22 IR's during NDA review



PHASE-APPROPRIATE DEVELOPMENT

- Spend money & resources on what moves project
- How? Apply regulatory guidance differentiating clinical development and commercial phases
 - Extent of method validation
 - Specifications (ICH conceptual during clinical ph.)
 - Phase 1 GMP guidance
- How? Science-driven consideration of the candidate (bio)molecule to balance risk vs. cost
 - What science needed to enable the clinical study?
 - What science can be postponed until the probability of success for the project is higher?
 - What science must be initiated or used to not delay future progression (e.g. lead time or bioequivalence gaps)?



VIRTUAL DEVELOPMENT LEARNINGS

- Be patient finding contract partners
 - There is no replacement for quality science at your CRO and CDMO
 - Treat CRO's as a partner and be transparent
 - Taking on risk to save costs may not pan out.
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- Incorporate learnings from others in the Tx area
 - Read everything in your target area
 - Continue to stay on top of all clinical studies registered with [ClinicalTrials.gov](https://clinicaltrials.gov)



Be Creative

The background of the image is a close-up, shallow depth-of-field shot of numerous pills and capsules scattered on a light-colored surface. The pills are primarily blue and white, with some green capsules visible. The text is centered over this background.

QUESTIONS?

**THANK YOU FOR YOUR
ATTENTION**