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vaccines that
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Immunomic Therapeutics, Inc.

Neoantigen Vaccine Platform

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Executive Summary

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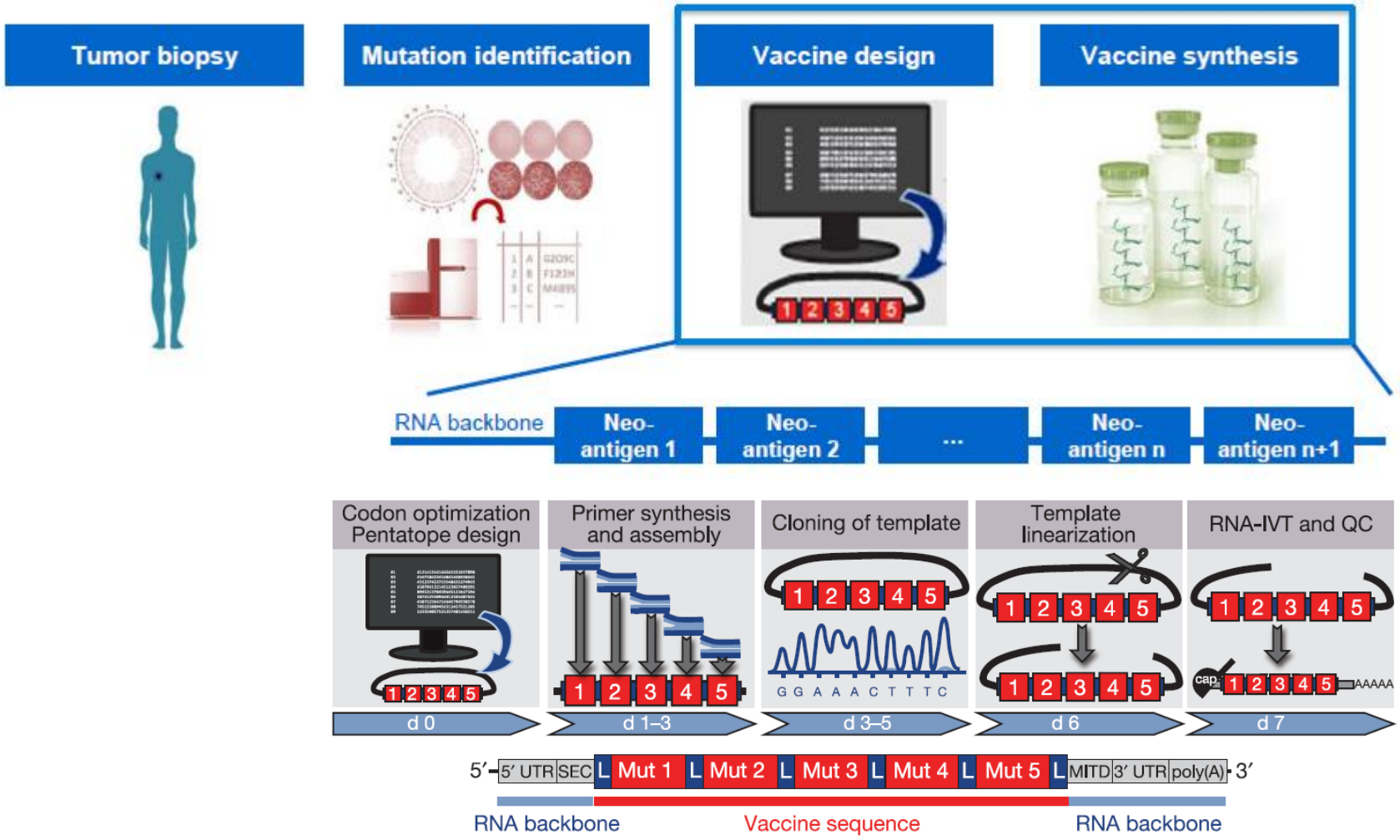
Neoantigen Vaccine Platform

- **Immunomic Therapeutics is developing novel investigational immunotherapies to treat immunology and oncology diseases based on LAMP-Vax technology**
- **Potential for LAMP vaccines:**
  - Create polyfunctional immune responses
  - Induce antigen-specific Th1-biased TILs at tumor site and activate CD8+ T-cells
  - Th1 CD4+ T-cell activity is believed to be part of effective immune responses to cancer
- **ITI solves two challenges in neoantigen vaccine development**
  - CD4+ T-cells are an important component of natural immune responses to neoantigens
    - Most current vaccine technologies focus primarily on generation of CD8+ T-cells
  - Manufacturing is the critical bottleneck in commercial feasibility
    - ITI has developed workflows that could release vaccine in 12-15 days

Competitive Landscape

Benchmarking: BioNTech's Genentech Collaboration



Source: Roche Investor Presentation at ASCO17

Competitors in Neoantigen Vaccine Development

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Timeline of Trials

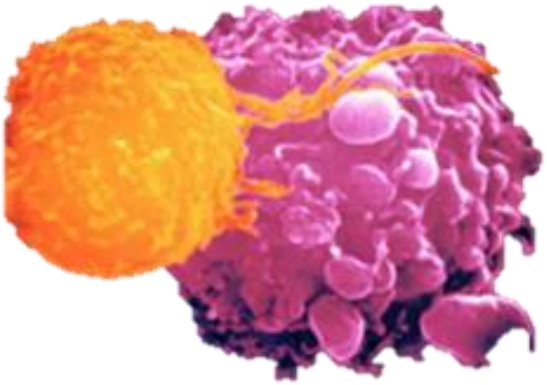
Product(s)	Company	Indication	2014		2015		2016		2017		2018		2019	
			H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
IVAC	BioNTech	Melanoma	P1, N=15; NCT02035956											
IVAC	BioNTech	GBM			P1, N=16; NCT02149225									
Peptide	Dana-Farber	GBM			P1, N=16; NCT02287428									
pDNA	Washington U	TNBC					P1, N=15; NCT02348320							
Peptide	Washington U	GBM					P1, N=10; NCT02510950							
Peptide	MD Anderson	Pancreatic							P1, N=40; NCT02600949					
IVAC	BioNTech	TNBC							P1, N=30; NCT02316457					
Peptide	Immatics	Leukemias							P2, N=56; NCT02802943					
NEO-PV-01 + Nivo	Neon	Bladder							P1, N=90; NCT02897765					
AutoSynVax	Agenus	Solid Tumors								P1, N=20; NCT02992977				
Peptide + Pembro	Washington U	NSCLC									P1, N=20; NCT03166254			
pDNA + Imfinzi	Washington U	TNBC									P1, N=24; NCT03199040			

MHC-II Targeted Antigen Presentation

Key Issue for Development of Anti-tumor Vaccines

1. Tumor-related

- Insufficient tumor antigen expression
- Loss of MHC class I expression by tumor
- Production of immunosuppressive factors for T and B cells



2. Immune cells-related

- Insufficient lymphocyte penetration into the tumor tissue
- Lack of T cell help
  - Insufficient MHC-II-restricted antigen presentation
  - Insufficient TH triggering
- Lack or insufficient CTL activity
  - Insufficient MHC-I-restricted antigen presentation
  - Insufficient support by TH cells
  - Scarce lytic activity
- Extrinsic functional blocking of T cells
  - Regulatory and suppressor cells
  - Inhibitory cytokines

Major elements influencing tumor escape from adaptive immune recognition & destruction

Accolla and Tosi Journal of Translational Medicine 2012, 10:154 http://www.translational-medicine.com/content/10/1/154

Neoantigen Vaccines with LAMP-Vax

- Other groups have established that neoantigen-targeted vaccines can be designed, manufactured and administered to patients in a clinically relevant time frame
- Neoantigen selection determined by algorithms
  - Three week process: one week for whole exome sequencing, another for validation of epitope presentation and one more for immunogenicity assays
- Once neoantigens have been selected, choosing the **right vaccine modality is critical**
- Type of immune response generated by vaccination:
  - Th1 immune response to neoantigens correlated with improved outcomes
  - LAMP-Vax generates Th1-biased response
- Vaccine manufacturing time frames:
  - Design to QA-released product in less than 8 weeks
  - LAMP-Vax manufacturing can theoretically be completed in 7 weeks
- Ability to target multiple neoantigens in single product
- LAMP-Vax enables these critical design criteria

Manufacturing of Plasmid DNA

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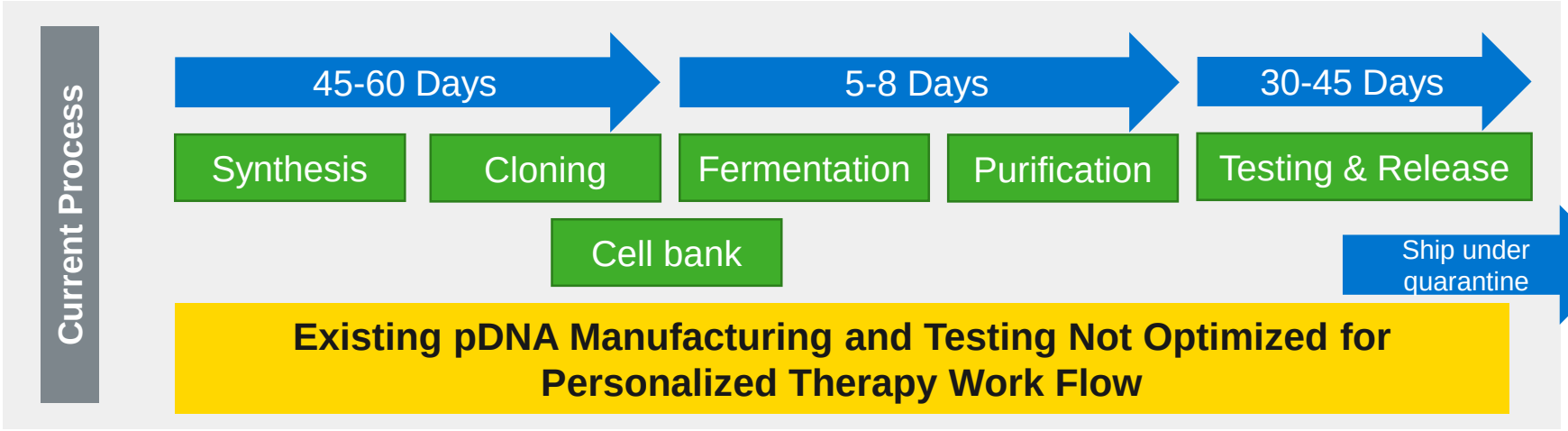
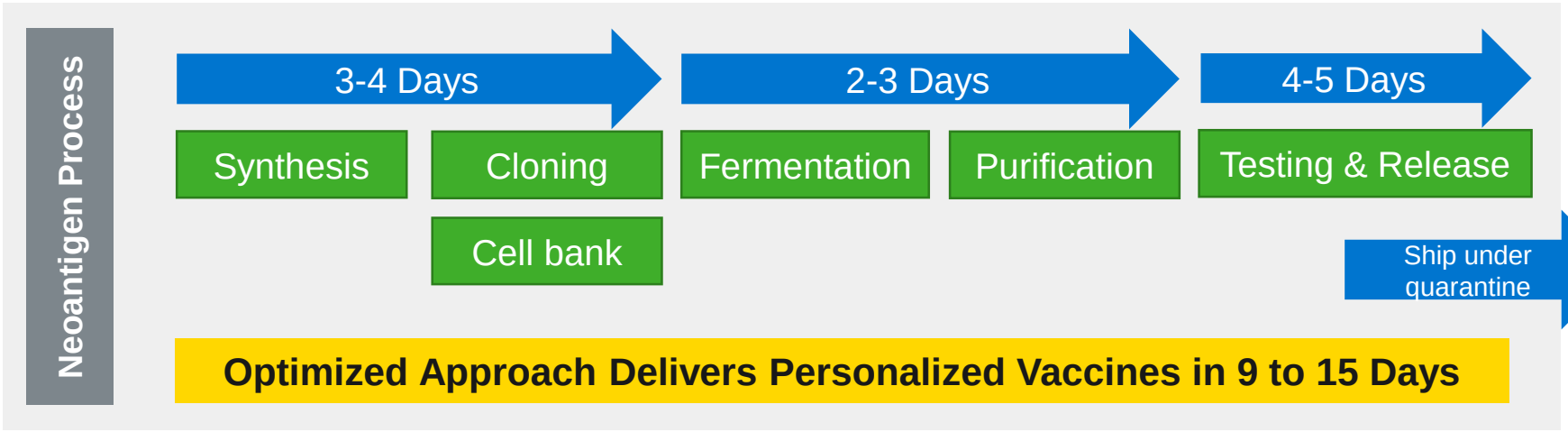
Timeline Comparison: Traditional Large-Scale vs. ITI Neoantigen Processes





LAMP-Vax Focused Strategy in Oncology

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Comprehensive Vaccine Approaches Currently Being Tested

Antigen Categories & Programs		
Viral Antigens	**Neo Antigens**	Ca Testes & Overexpressed
Cancers caused by viruses or where viruses are reactivated	**LAMP-Vax to: Deliver hyper-personalized vaccines** Quick TAT, high interest area.	**Known & established cancer antigens, common targets w/ novel approach**
Phase I available, Phase II underway, new animal data in progress	Data in animal models currently being generated in-house & in collaborations. Will be available Q2/3 2017	Clinical data on approach available New animal model data available, more in by Q2 2017

Approaches in house and under collaboration tested in models & humans in multiple tumors

Platform dev in parallel supports applications: bioinformatics, delivery, nanoparticles, adjuvants

Thank You

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