

SafeStamp

anti-counterfeit security application



TO AUTHENTICATE

1) SHINE LIGHT TO

SEE GREEN

2) BLOW TO SEE BLUE

Business Opportunity/Market Overview

counterfeit pharmaceuticals: fake medicines sold as popular brands

Problem:

30% of medicine is counterfeit

→ up to **70%** in some emerging economies

\$200 billion annual costs

+1 million killed each year

**Current Market for pharmaceutical
anti-counterfeit technology:**

Large: \$33.7 Billion

Growing: at CAGR 13.2% between 2013-2020



Can you tell which is fake?

Description of the Product

a color-changing security tag on medication packaging

- 1) sold as a sticker label to pharmaceutical companies / packaging plants
- 2) affixed to medical packaging so that opening package breaks the stamp
- 3) at every point in supply chain, recipients of medicine **shine** a light, causing the stamp to glow green (thereby proving authenticity)
- 4) end-users **shine + blow**



SHINE

Shine light on SafeStamp
→ turns **green**



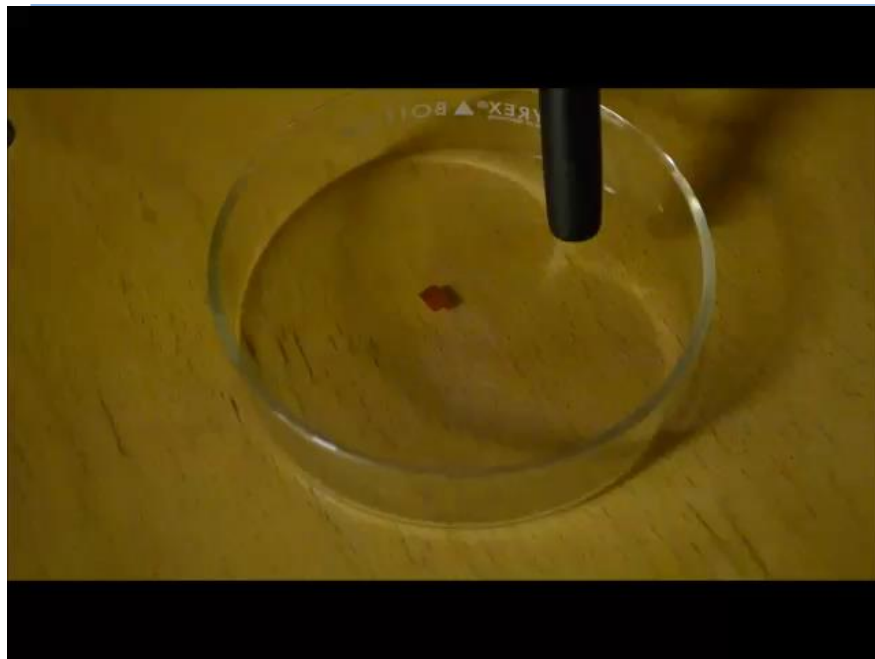
BLOW

Blow air on SafeStamp
→ turns **blue**

Nanotechnology too complicated for criminal organizations to counterfeit

Innovative Technology

distinctive fluorescence – patent-pending technology

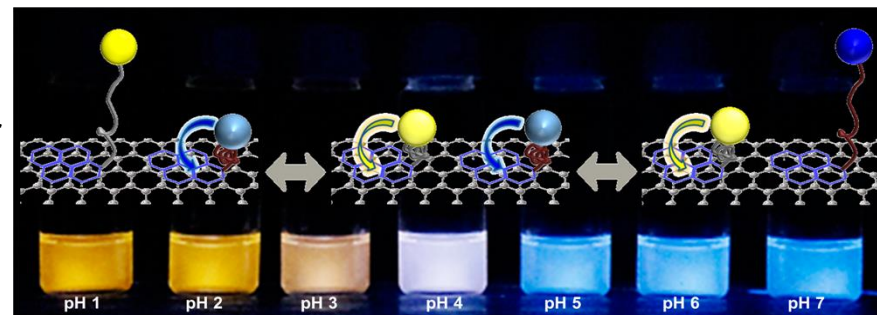


Graphene provides a stable base for quantum dots. A protective sticker surrounding SafeStamp not only protects the mark, but bends wavelength of light to 350nm. Quantum dots are functionalized to change color when exposed to 350nm light.



Video of a piece of our prototype showing SafeStamp's dual color change
<http://youtu.be/7xQqhyL3hM0>

Quantum dots, via FRET (Forster Resonance Energy Transfer) change color when exposed to a chemical “base”, which can be found in human breadth (represented by the solution in the video.)



Sources: *quantum dots and color* - <http://pubs.acs.org/doi/abs/10.1021/nn406657b>;
ratiometric fluorescence - <http://iopscience.iop.org/0957-4484/23/31/315502/media>

Market Overview/Development Plan

prototype nearly complete; superior to available market alternatives

Cost Per Unit

- **\$0.18** per one sq. inch or less, when scaled
- includes cost of raw material (graphene, quantum dots, etc.) and cost of production
- Suppliers: Crystal Plex, QD vision

Development Cost over Next 6 months

- **\$12,000**; Breakdown: prototype cost: \$500; initial Inventory cost for 10,000 units (at \$1 cost per unit, produced initially): \$10,000; Trade shows, showcase & travel fees for initial customer acquisition.

Marketing

- Market to pharmaceutical manufacturers
- Collect revenue per individual SafeStamp
- Price: **\$0.50** per tag (**+\$0.30 profit per unit**), compared to competitor average of \$1.28

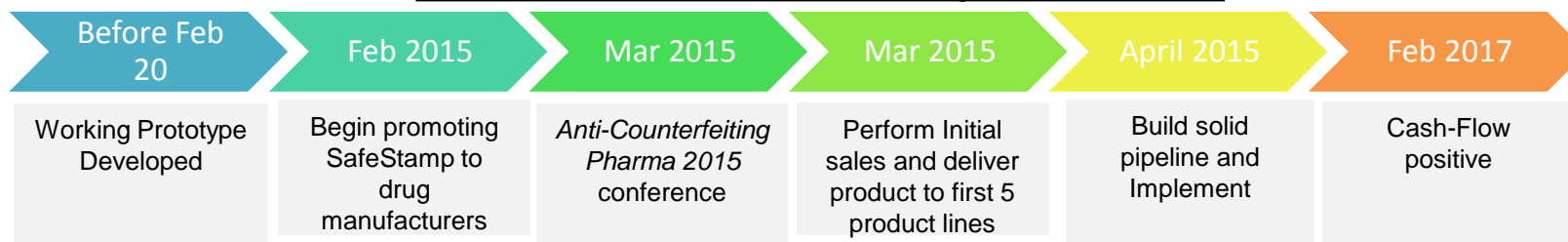
SafeStamp is superior to substitutes

Key Attributes	Tracing		Authentication			SafeStamp
	RFID tags	2D/3D barcodes	Scratch-Off Labels with UIMV	QR Codes	Holograms	
						
Patients/end-users can verify authentication themselves			✓	✓	✓	✓
Authenticity application is difficult to replicate	✓					✓
Does not require internet access	✓	✓	✓		✓	✓
Does not require phone/SMS access	✓	✓		✓	✓	✓
Low initial setup cost for drug manufacturer		✓		✓	✓	✓
No specialized infrastructure needed for other members of the supply chain			✓	✓	✓	✓

Marginal Benefit – example

- **\$89 mil** in additional net profit to manufacturer GlaxoSmithKlein in 2014 if it used SafeStamp on a single drug Advair (45 mil prescriptions sold)

Technical and Business Development Timeline



Team

Please see <https://www.youtube.com/watch?v=jamdZHS6oNY>



Anastasia D'Orazio

Sales, Finance, Management

Launched B2B sales campaigns and managed opportunity pipeline for existing offerings at Alger, contributing to \$1.6Bn AUM



Meet Vora

Technology

In addition to SafeStamp, currently working on developing nanotech tactile skins for robots – allowing them to “feel”



Ravit Dung

Research and Development

In addition to SafeStamp, currently working on graphene device which could reduce the cost of DNA sequencing genome from > \$1000 to <\$10



Matt McGuire

Marketing, Strategy, Operations

Former Special Operation soldier specializing in MISO (military equivalent of marketing and strategy); recently studied in India, taking coursework in Bangalore on Technology Start-Ups and in Mumbai on Marketing to the Indian Consumer