Regulatory Assessment for [redacted] Melanoma Testing Kit for the US Market

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Objectives

1	Delineate the most likely FDA device categorization for the [redacted]™ product if the reagents were converted into a kit
2	Describe the FDA filings required for the [redacted] kit based on its device categorization
3	Evaluate what, if any, additional non-clinical or clinical studies beyond those completed or in progress would likely be required to support an FDA submission
4	Estimate the likely expenses and timeline associated with an FDA submission for the [redacted] kit

FDA clearance for the [redacted] kit would yield substantial marketing benefits – these need to be weighed against expenses to yield an ROI

Point of Care (POC) Testing

Potential for More Rapid Time to Result

Optimize State and Regional Reimbursement from Third Party Payers

A [redacted] kit is likely to be categorized by FDA as a class II medical device

FDA clearance/approval based on assessment of safety & efficacy and risk/benefit

- From a safety perspective, a [redacted] kit would be associated with a higher risk of use than a typical class I medical device, which in some cases are considered non-restricted, and can be purchased directly by consumers
- From an efficacy perspective, the specific intended use(s) and any indication(s) for the [redacted] kit would need to be specified. However, the [redacted] testing kit is not permanently implantable or life-sustaining, so it is unlikely that it would be categorized by FDA as a class III device*
- The precise categorization can be determined through a Section 513(g) classification request – timing and expenses outline in slides 10 & 11
- There is precedent in the marketplace for genetic testing products to be categorized by FDA as class II medical devices – f*or example 23andMe*.

* Sections 513 & 515 of the Food, Drug and Cosmetic Act

The 510(k) premarket notification process is utilized to clear most but not all class II medical devices for marketing – 513(g) classification request process can help determine categorization

510(k) Premarket Notification Applies To

- Device being introduced into commercial distribution for the 1st time (*unless the device has been exempt*)
- Device design is based on an approved device but has been modified in a way that could impact its safety and effectiveness
- Device is marketed with new intended use(s) or indication(s)

Exempt From the 510(k) Premarket Notification

- Devices for which general controls are sufficient to provide a reasonable assurance of safety and efficacy
- Pre-amendment devices, as long as:
  - They have not been adulterated or misbranded
  - No changes in labeling or changes in device design have been made

The 510(k) premarket notification process requires demonstration of 'substantial equivalence' to legally marketed devices

In return, FDA is assured:

- Any new device will not be marketed until it complies with PMA requirements (or is down classified to Class II or I)
- Any new device claiming to be 'similar' to pre-amendment device is actually 'substantially equivalent' to said device

1976 Medical Device Amendments modified § 510 of the FD&C Act to include subsection (k)

- Manufacturers that register under section 510 must provide a premarket notification to the FDA at least 90 days prior to marketing a device

FDA clearance for [redacted] would likely require submission of a *de novo* 510(k) premarket notification

No predicate device currently exists for a myPath kit

- No comparative product currently marketed in the US
- Substantial equivalence determination not possible to establish safety and efficacy

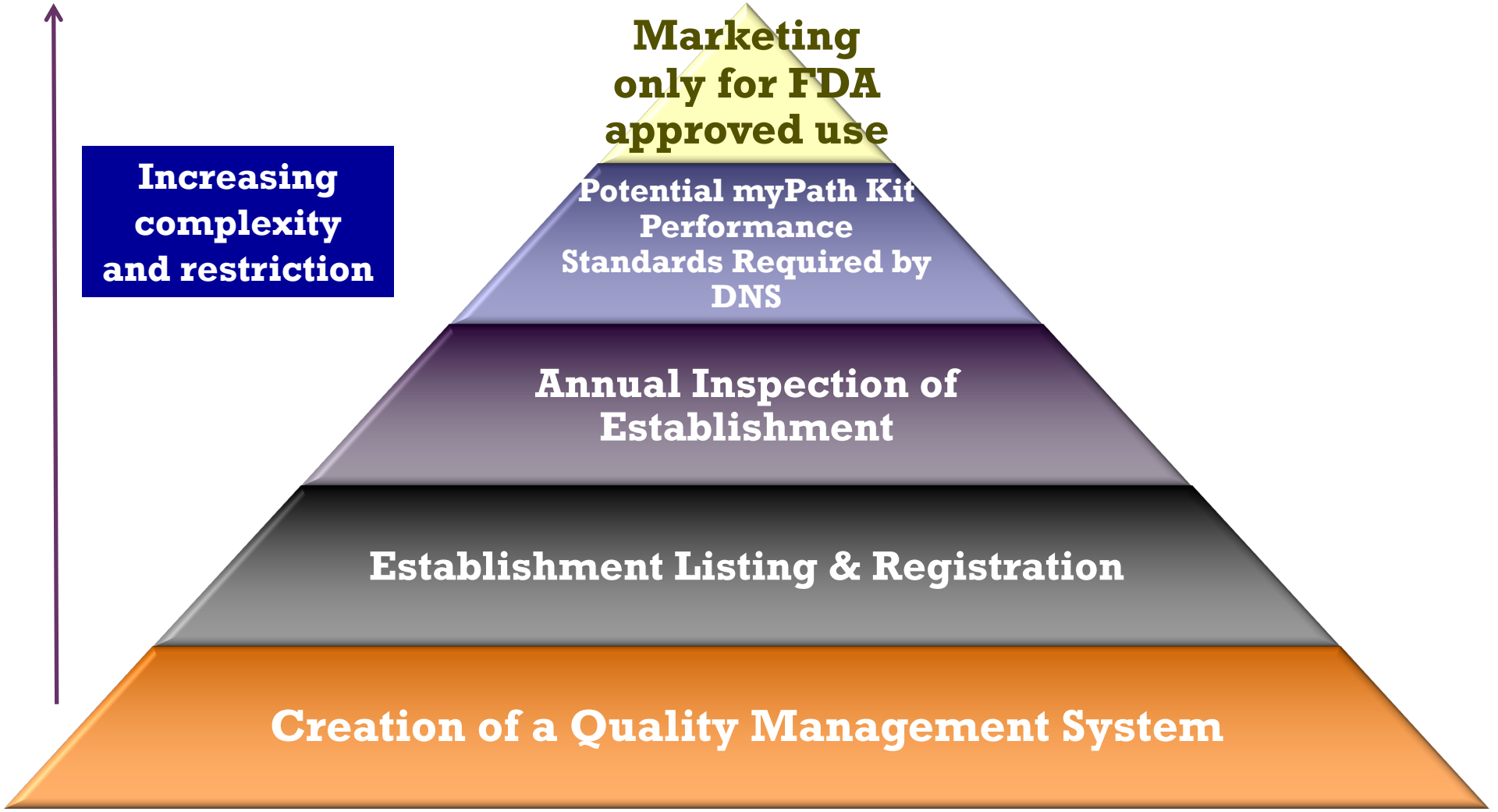
De novo 510(k) submission could enable a class II categorization by FDA

- Risk/benefit ratio comparable to other class II devices
- Pre *de novo* submission (PDS) process can streamline process
- Historical precedents in US market (*i.e. 23andMe)*

Steps involved

- File Pre *de novo* submission (PDS)
- FDA issues Suitability Letter after 60 days – *Basically yes or no answer*
- File *de novo* 510(k) submission

FDA clearance for [redacted] kit would likely have additional requirements beyond demonstration of safety and efficacy for the product itself



Although multiple non-clinical studies have been conducted to date, FDA would likely require additional work prior to 510(k) clearance

[redacted] studies conducted to date:

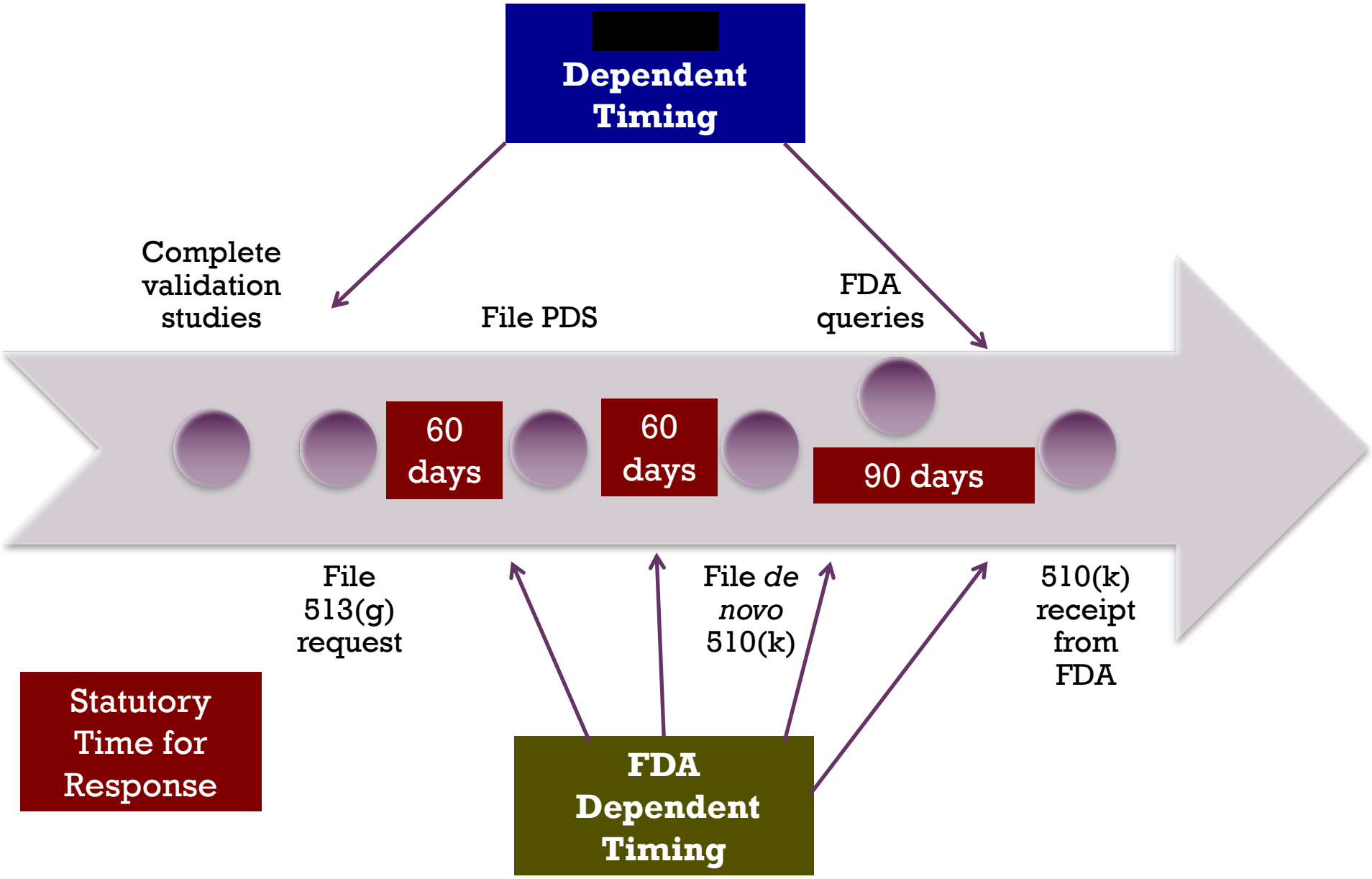
1) Non-clinical validation study to correlate presence of 10 selected biomarkers with melanoma pathology
2) Training subset from 1st non-clinical validation study
3) Analytical validation of CLIA assay for NY state certification

Additional [redacted] studies likely to be required to support 510(k) submission:

1) Clinical validation study to correlate presence of 10 selected biomarkers with melanoma pathology conducted under Good Clinical Practices (GCP) – may not need to be comparative and may only require 50-100 patients
2) Multi-center training validation study to demonstrate that POC testing generates same results as CLIA certified lab-based results

If these studies are conducted to support an FDA submission, they must be posted on www.clinicaltrials.gov 21 days in advance – FDA Amendments Act of 2007

Timeline for FDA Submission Activities



Expenses for FDA 510(k) Submission

FDA Expenses (FY16)	513(g) Classification Fee - $3,490
	De novo 510k Submission (DNS) Fee - $5,170
	Establishment Registration & Listing Fee - $3,313
	Quality Management System Preparation - ????
	Additional Study Expenses - ????
FDA Submissions Prep Expenses	513(g) submission - $7.5 K
	Pre *de novo* submission (PDS) - $10 K
	510(k) Preparation - $35 K

Further [redacted] Commercialization Assessment Options

- File a 513(g) request for classification with FDA
- Approach FDA for feedback through pre- *de novo* 510(k) submission (PDS) meeting
- More detailed evaluation of non-clinical and clinical study design and endpoint requirements to support FDA 510(k) submission – *Project Fee -* [redacted]
- Return on Investment (ROI) analysis that evaluates marketing returns & expenses, as well as non-clinical and clinical study & reimbursement expenses. The analysis would incorporate the regulatory expenses outlined in the present evaluation to quantitate the total ROI – *Project Fee -* [redacted]
- Analysis of the impact of FDA 510(k) submission on reimbursement & international marketing efforts with myPath™ and other [redacted] products – [redacted]

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