

# Genomics-based Microbial Forensics at NBFAC

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**2012 International Conference on Health and Security**

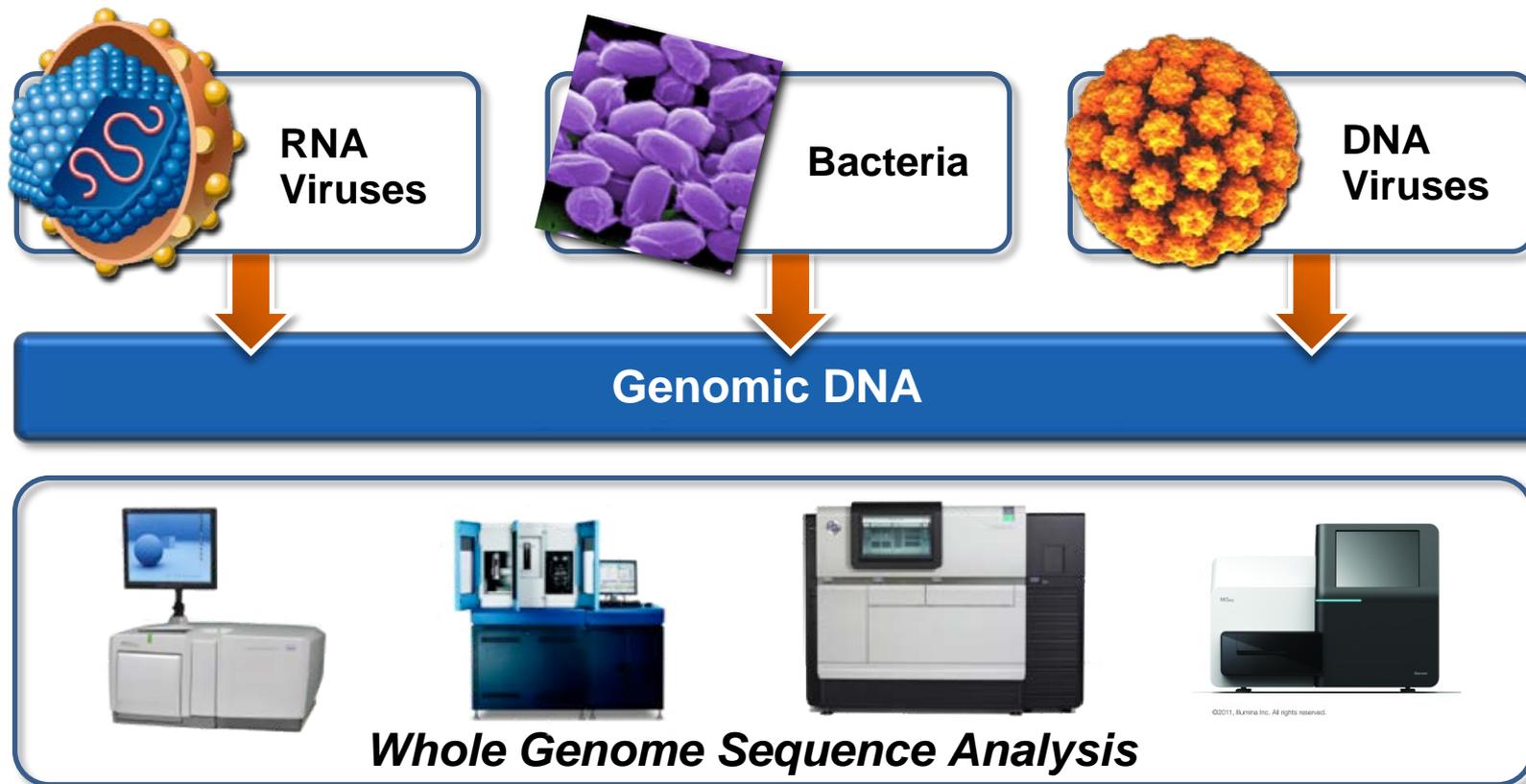
**September 6, 2012**



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# NBFAC's Genomics-based Approach to Bioforensic Analysis



***A comprehensive approach allows the characterization of any agent, using a range of complementary sequencing technologies within an ISO 17025 quality management framework***

# Analysis of *B. anthracis* str. Heroin

- Received genomic DNA in March 2011 (NBFAC and Northern Arizona University)
- Sequenced on Roche 454 and Illumina to ~100x coverage
- Hybrid assembly produced a high-quality draft genome sequence that is now publicly available in Genbank



# Analysis of *B. anthracis* str. Heroin

SNP	Ancestral	Derived	Sample	Cov	Pr(A)	Pr(C)	Pr(G)	Pr(T)
BBr004v2	T	C	T	86	0	0	0	1
<b>ABr006</b>	<b>C</b>	<b>A</b>	<b>A</b>	<b>97</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
ABr001	T	C	T	95	0	0	0	1
ABr007	A	G	A	103	1	0	0	0
ABr002	C	T	C	62	0	1	0	0
BBr002	C	A	C	68	0	1	0	0
BBr001	A	G	A	73	1	0	0	0
ABr003	T	C	T	67	0	0	0	1
BBr003	G	A	G	56	0	0	1	0
ABr004v2	T	G	T	37	0	0	0	1
CBr001	C	T	C	57	0	1	0	0
ABr009	A	G	A	53	1	0	0	0
<b>ABr010v2</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>68</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>A/BBr001</b>	<b>G</b>	<b>A</b>	<b>A</b>	<b>76</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ABr005</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>ABr008</b>	<b>A</b>	<b>C</b>	<b>C</b>	<b>58</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<u>plcR</u>	C	A	A	73	1	0	0	0
				69				

- Canonical SNP analysis showed that it is a member of the Trans-Eurasian clade of *B. anthracis*, and not closely related to Ames or Vollum groups





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