

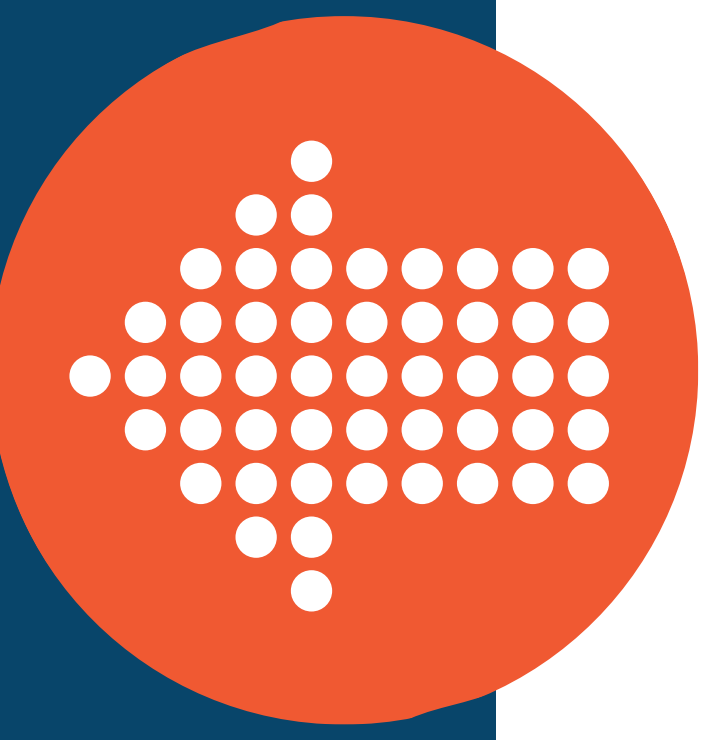


Assessment of the glo Tobacco Heating Product (Part 2): Traditional and 21st Century toxicology approaches



glo

Cigarette smoking is a risk factor for many diseases including cardiovascular disease, lung disease, and cancer. Recently there has been an increase in the development and consumer acceptance of novel nicotine and tobacco products including tobacco-heating products (THPs). Here we present our *in vitro* toxicological and biological assessment of a THP, glo, designed to reduce toxicant exposures. Responses were compared to a 3R4F reference cigarette.



EXPERIMENTAL STUDY DESIGN

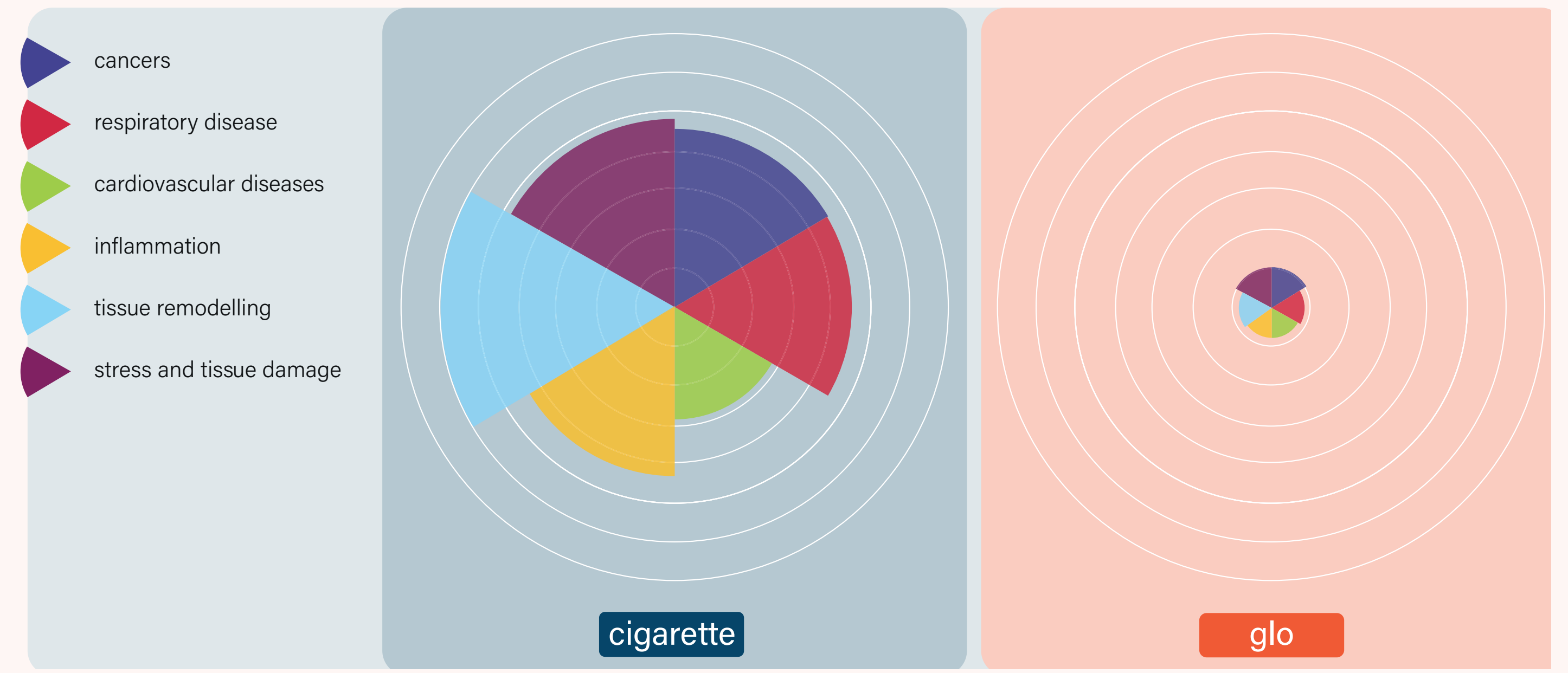
Aerosol was generated from the glo product by machine puffing according to a modified Health Canada Intense puffing regime.

A number of *in vitro* tests were performed. These tests included traditional regulatory toxicology assays, performed according to international guidelines.

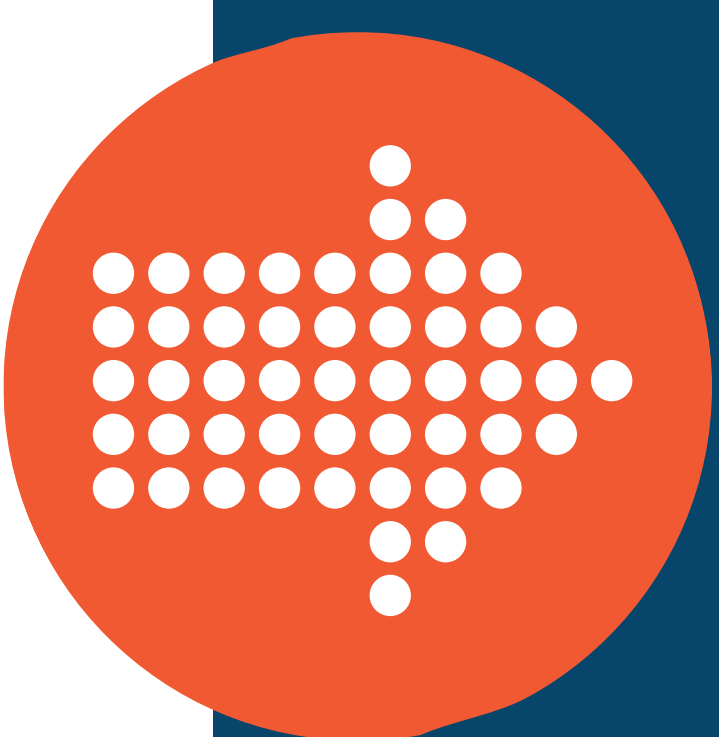
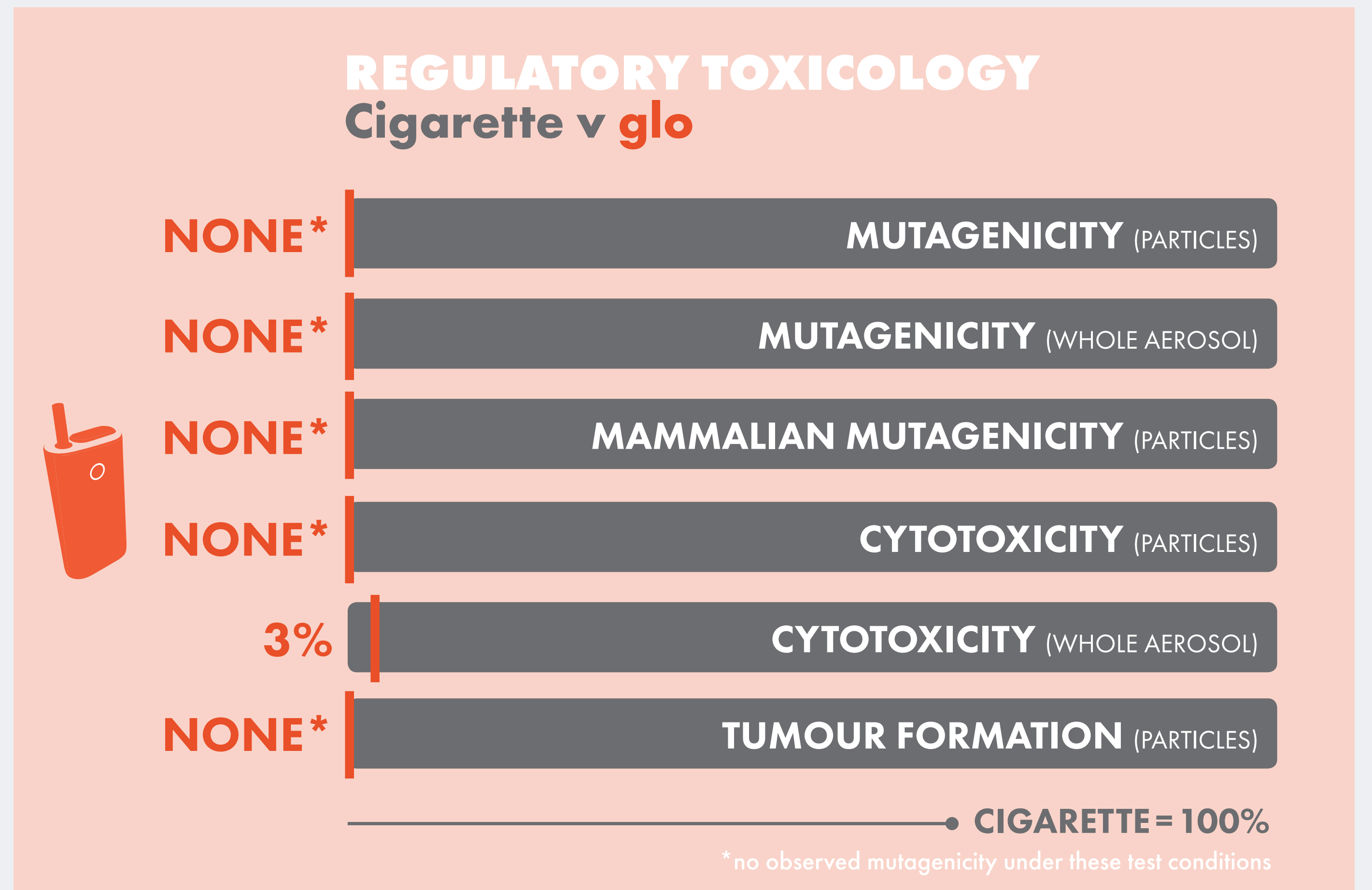
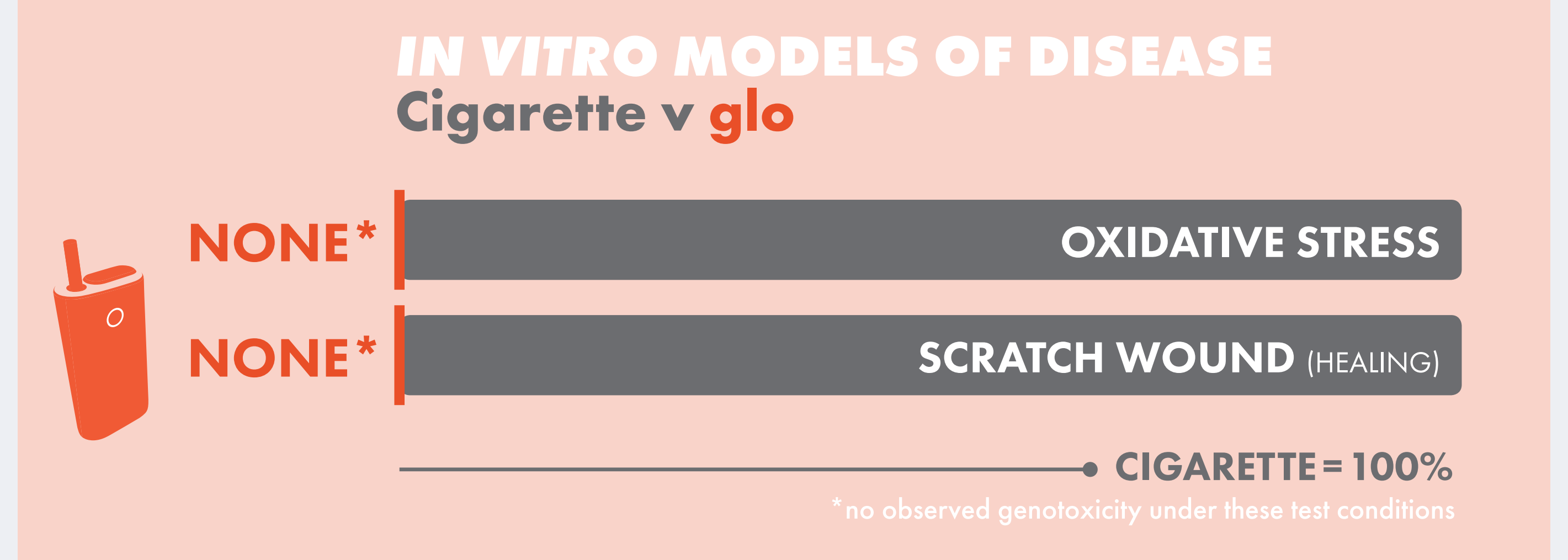
These tests were supported by

more contemporary systems biology approaches, whereby human lung cells were exposed to aerosols directly, and were then assessed for their responses at the genetic level.

Finally, high content screening tools were used to provide additional information on the biological effects of glo and the reference cigarette.



CLASSIFICATION	ENDPOINT	TIME (H)	3R4F	GLO
Cell function	Cell count	4	—	—
		24	*	—
	Nuclear size	4	*	—
		24	*	—
	DNA structure	4	*	—
		24	*	—
Mitochondrial mass	4	*	—	
	24	*	—	
Mitochondrial membrane potential	4	*	—	
	24	*	—	
Cellular ATP	4	*	—	
	24	*	—	
Oxidative stress	Reactive oxygen species generation	4	*	—
		24	*	—
	Glutathione content	4	*	—
Cell signalling	cJun	4	*	—
		24	*	—
DNA damage	pH2AX	4	*	—
		24	*	—
Genotoxicity	Micronucleus	4	*	—
		24	*	—



- We have conducted a series of *in vitro* biological studies on glo, and compared it to a reference cigarette
 - Results suggest the product shows the potential to reduce health risks
 - Further pre-clinical and clinical assessments are required to understand further the risk reduction potential of these novel products

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