Manufacturing step	Required document/information	Description	FDA (US) (based on dossiers of Upside & Good Meat)	USDA FSIS (US) (FSIS Directive 7800 and FSIS Notice 31-23)	SFA (Singapore)	FSA (UK) *from (2022), (2023), and FSA/FSS request for information*	EFSA (EU)	FSANZ (AUS/NZ) (Hazard & risk assessment of Vow's application and Application Handbook for novel foods)	MFDS (South Korea)	FAO/WHO	Vireo recommend-ations in the report
Cell sourcing	Cell origin	Description of cell origin (species, biopsy, slaughtered animal, cell line provider, etc.)	X		X	X	X	X	X		**X**
	Type of cell	Description of type of cell (GMO, immortalized, stem cell, tissue, etc.)	X		X	X	X	X	X		**X**
	GMO	If GMO, description of type of genetic modification process & safety evaluation of the GMO	X		X	X	X	X	X		**X**
	Biopsies/Cell sourcing	If applicable, information to demonstrate that biopsies/cell sourcing comply with animal health and food safety requirements. Health of the source animal (even if gathered from slaughtered animal)	X		X		X	X	X	X	**X**
	Analysis of inputs	Listing of substances used (antibiotics, substances for sterilization, etc.) and safety assessment of these	X		X	X	X	X	X	X	**X**
	Prions	Description of prevention/mitigation steps to avoid prion contamination	X			X	X	X		X	**X**
	Microbial toxin contamination	Safety assessment of the cells - testing for microbial toxins					X	X	X (?)	X	
	Residual hormones	Safety assessment of residual agricultural hormones from source animal	X (Good Meat only)								
	Food allergens (source animal)	Food allergens assessment (from source animals)				X				X	
	Microplastics	Safety assessment of microplastics (including nanoplastics) introduced from water, air, equipment, ingredients, etc.							X (?)	X	
Establishment of cell lines	Species verification	Verification of species identity	X		X			X	X (verification methods for established cell lines)	X	**X**
	Cells (visual inspection)	Visual inspection of cells, physicochemical inspection	X						X		**X**
	Cell growth characteristics	Documentation of cell viability, doubling time, cell stability, cell density & protein yield	X				X (they mention "stability of cells")		X		**X**
	Genetic modification	If genetic modification introduced here (e.g., for cell line enhancement or for nutritional enhancement), description of type of genetic modification process & safety evaluation	X		X	X	X	X	X		**X**
	Genetic stability	Assessment of genetic stability	X		X		X (they mention "stability of cells")	X	X	X	
	Tumorigenicity	Assessment of tumorigenicity	X						X		
	Analysis of inputs	Media components and other substances used & safety assessment of these; Hazardous chemical / food additive residues & safety assessment of these.	X		X	X	X	X	X	X	**X**

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Cell storage	Analysis of inputs	Safety assessment of substances (cryoprotectant, antibiotics, substances for sterilization, etc.)	X		X	X	X	X	X		**X**
	Microbiological contamination	Safety assessment of the cells - testing for viruses, bacteria, and mycoplasma	X		X	X	X	X	X	X	**X**
Mass cultivation: Cell proliferation and differentiation	Analysis of inputs	Safety assessment of media components, scaffold and other added substances demonstrating that the substance is food-safe Animal derived components: Documentation demonstrating that animal-derived substances do not contain disease-agents or other hazardous substances Biological agents: Documentation demonstrating safe use Components derived from genetically modified organisms: Documentation demonstrating safe use	X		X	X	X	X	X For the scaffold: type and composition of the support materials, but APAC SCA mentioned that at least one company was not able to quantify the amount of scaffold present in the final product.	X	**X**
	Cell contamination	Monitor for cell microbiological or chemical contamination	X		X	X	X			X	**X**
	Monitoring of cells	Monitor physicochemical transformations of cells		X				X			**X**
	Genetic stability	Monitor genetic stability and consistency of product	X		X	X	X (they mention "stability of cells")			X	**X**
	Chemical contaminants	Mitigation or measurement of chemical contaminants from equipment, cleaning products, ingredients, etc.	X		X	X	X			X	**X**
	Allergenicity	Evaluation of proteins expressed during cell mass production against known allergens									
	Media recycling	If applicable, assessment of whether media recycling concentrates are hazardous inputs/residues.									
	Microplastics	Monitor if microplastics (including nanoplastics) are introduced from water, air, equipment, ingredients, etc.								X	

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Cell harvest	Species verification	Verification of species and cell lineage identity							X		
	Residue analysis	Safety assessment of residues	X		X	X	X	X	X	X	**X**
	Washing efficiency	Assessment of the efficacy of the removal steps	X (Good Meat - albumin and pluronic F-68)		X (Information demonstrating the removal of culture media)			X	X		
	Microbiological contamination	Measurement of viruses, bacteria, yeast, mold	X	X	X	X	X	X	X	X	**X**
	Genetic stability	Production of unintended toxins or allergens	X		X	X	X	X	X		**X**
	Transference of GM DNA	Evaluation of the potential for DNA to be transferred to gut or environmental microbes									
	Toxicity testing (if needed)	Toxicity (acute, sub-chronic and chronic)			X	X	X	X	X		
	Toxicity testing (if needed)	Genotoxicity			X		X	X	X		
	Toxicity testing (if needed)	General systemic toxicity, chronic toxicity/ carcinogenicity/ mutagenicity (if critical findings were reported in the genotoxicity and sub-chronic/acute toxicity studies). Reproductive and developmental toxicity. Metabolism or toxicokinetic studies including (ADME)			X		X	X	X		
	Chemical contaminants (from environment)	Measurement of chemical contaminants from equipment, cleaning products, ingredients, etc.	X	X	X	X	X		X	X	**X**
	Chemical contaminants (from inputs)	Measurement of hazardous chemicals from inputs (e.g., antimicrobials, heavy metals, etc.)	X	X	X	X	X		X	X	**X**
	Physical contaminants	Foreign object contamination (e.g. plastic, metal, hair, jewelry, glass, etc.) & microplastics (including nanoplastics) introduced from water, air, equipment, ingredients, etc.				X	X		X	X	
	Composition	Analysis of nutritional composition	X		X	X	X	X	X	X	**X**
	Food allergen	Assessment for food allergens	X		X	X	X	X	X	X	**X**
Food processing	Other added ingredients during food processing	Safety assessment of added ingredients		X	X			X	X		**X**
Estimated dietary intake and Intended use	Use level	Proposed maximum use level/serving size portion	X		X		X	X	X		
	Food category	Food category			X			X	X		

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History of safe use	History of safe use	Description of the history of use and safe consumption for food ingredient safety assessment	X		X	X	X	X	X	X	
Shelf life	Shelf life	Shelf life analysis	X		(may be requested after sale allowed)	X	X	X			
Packaging/ shipping material	Packaging	Inspection of packaging/shipping materials of raw materials and the final product packaging to ensure they have not been damaged and no microbial contamination could have taken place.						X	X		
Quality control systems	Quality control measures	Description of food safety programs, including Hazard Analysis and Risk-Based Preventive Controls (HARPC), Quality control measures, HACCP, GMP, Good Cell Culture Practices (GCCP)	X	X	X	X	X	X	X		**X**
		Training plans and records of staff members in food safety/food handling/food hygiene courses, as well as in aseptic techniques or cleanroom training (where appropriate).			X	X					(As part of food safety program)
		Safety documentation for raw materials	X				X	X			(As part of food safety program)
		Production control and quality and safety assurance	X		X	X	X	X		X	(As part of food safety program)
		Supplier Approval Program	X					X			(As part of food safety program)
		Sanitation controls, and sanitary design of equipment and tools	X			X		X			(As part of food safety program)
		Equipment qualification/facility design						X			(As part of food safety program)
	Regulatory status of inputs	Analysis of the regulatory status of each input material *i.e.* , regulations and guidelines established by regulatory bodies to prioritize materials with approved regulatory status							X		(As part of food safety program)
Information as of 24th May 2024											