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Vaccine Ingredients and Manufacturer
Information
(alphabetical order by vaccine)

We have listed **vaccine ingredients** (substances that appear in the final vaccine product), **process ingredients** (substances used to create the vaccine that may or may not appear in the final vaccine product), and **growth mediums** (the substances vaccines are grown in) for vaccines approved by the Food & Drug Administration (FDA) and commonly recommended by the Centers for Disease Control (CDC.) Controversial products used to make vaccines: African Green Monkey (Vero) cells, aluminum, cow products, Cocker Spaniel cells, formaldehyde, human fetal lung tissue cells, insect products, and mouse brains.

Though not listed, each vaccine contains strains of the virus being vaccinated against. Each vaccine entry links to the manufacturer's package insert that contains information about dosage, ingredient quantity, and how the vaccine is made. Some vaccines, like influenza vaccines, are modified frequently and you may wish to consult the package inserts online and your doctor for the most current information.



- I. Vaccines and Ingredients
- II. Glossary and Details for Ingredients
- III. Sources

I. VACCINES AND INGREDIENTS	

1. Adenovirus 2. Anthrax 3. BCG (tuberculosis) 4. Cholera 5. DT (diphtheria & tetanus) 6. DTap (diphtheria, tetanus, & pertussis) 7. DTap-IPV (diphtheria, tetanus, pertussis, & polio) 8. DTap-HepB-IPV (diphtheria, tetanus, pertussis, hepatitis B, & polio) 9. DTap-IPV/Hib (diphtheria, tetanus, pertussis, polio, & haemophilus influenzae type B) 10. Hib (haemophilus influenzae type B) 11. Hib/Hep B (haemophilus influenzae type B & hepatitis B) 12. Hep A (hepatitis A) 13. Hep B (hepatitis B) 14. Hep A/Hep B (hepatitis A & hepatitis B) 15. HPV (human papillomavirus) 16. Influenza A (H1N1) (swine flu) 17. Influenza A (H5N1) (bird flu)	18. Influenza A & B 19. Japanese Encephalitis 20. Meningococcal 21. Measles 22. MMR (measles, mumps, & rubella) 23. Pneumococcal 24. Polio 25. Rabies 26. Rotavirus 27. Rubella 28. Smallpox 29. TD (tetanus & diphtheria) 30. Tdap (tetanus, diphtheria, & pertussis) 31. Typhoid 32. Varicella (chickenpox) 33. Yellow Fever 34. Zoster (shingles)
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1. Adenovirus Vaccine

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Adenovirus Type 4 and Type 7 Vaccine, Live, Oral --	Barr Labs/Teva Pharmaceuticals (under contract with US Army) Apr. 2014	human-diploid fibroblast cell cultures (WI-38), Dulbecco's Modified Eagle's Medium, fetal bovine serum, sodium bicarbonate	sucrose, D-mannose, D-fructose, dextrose, potassium phosphate, plasdone C, anhydrous lactose, micro-crystalline cellulose, polacrilin potassium, magnesium stearate, cellulose acetate phthalate, alcohol, acetone, castor oil, FD&C Yellow #6 aluminum lake dye, human serum albumin, monosodium glutamate

2. Anthrax Vaccine

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Anthrax Vaccine Adsorbed Biothrax	Emergent Biosolutions Nov. 2015	amino acids, vitamins, inorganic salts and sugars	aluminum hydroxide, benzethonium chloride, formaldehyde, proteins (including 83kDa protective antigen)

3. BCG Vaccine (tuberculosis)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
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BCG Live Tice BCG	Organon Teknika Corp. Feb. 2009	glycerin, asparagine, citric acid, potassium phosphate, magnesium sulfate, iron ammonium citrate	lactose, saline
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4. Cholera Vaccine (tuberculosis)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Cholera Vaccine Live Oral Vaxchora	Pax Vax Bermuda Ltd. June 2016	casamino acids, yeast extract, mineral salts, anti-foaming agent	ascorbic acid, Hy-Case SF (hydrolyzed casein), sodium chloride, sucrose, dried lactose, sodium bicarbonate, sodium carbonate

5. DT Vaccine (diphtheria & tetanus)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Diphtheria and Tetanus Toxoids Adsorbed --	Sanofi Pasteur, Ltd. June 2013	peptone, bovine extract, modified Mueller and Miller medium, aluminum phosphate, isotonic sodium chloride solution, casein, cysteine, dextrose, uracil, inorganic salts, vitamins	aluminum phosphate, formaldehyde

6. DTap Vaccine (diphtheria, tetanus, & pertussis)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Adsorbed Daptacel	Sanofi Pasteur, Ltd. 2013	Stainer-Scholte medium, modified Mueller’s growth medium, modified Mueller-Miller casamino acid medium (without beef heart infusion), casamino acids, dimethyl-beta-cyclodextrin, ammonium sulfate, aluminum phosphate, glutaraldehyde, formaldehyde	aluminum phosphate, formaldehyde, glutaraldehyde, 2-Phenoxyethanol
Diphtheria and		formaldehyde, glutaraldehyde,	

Tetanus Toxoids and Acellular Pertussis Vaccine Adsorbed Infanrix	GlaxoSmithKline Biologicals 2013	Fenton medium (containing bovine extract), modified Latham medium (derived from bovine casein), modified Stainer-Scholte liquid medium, aluminum hydroxide sodium phosphate, peptone-based medium, bovine extract (US sourced), formaldehyde, ammonium sulfate, aluminum potassium sulfate, modified Mueller and Miller medium, modified Stainer-Scholte medium, isotonic sodium, chloride solution, sodium phosphate	aluminum hydroxide, polysorbate 80, sodium chloride, formaldehyde thimerosal, gelatin, polysorbate 80(Tween 80), formaldehyde, aluminum
Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Adsorbed Tripedia* *This vaccine has been discontinued.	Sanofi Pasteur, Inc. Dec. 2005		

7.

DTap-IPV Vaccine
(diphtheria, tetanus, pertussis, & polio)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed and Inactivated Poliovirus Vaccine Kinrix	GlaxoSmithKline Biologicals 2016	formaldehyde, glutaraldehyde, aluminum hydroxide, Vero cells, calf serum, lactalbumin hydrolysate, Fenton medium (containing bovine extract), modified Latham medium (derived from bovine casein), modified Stainer-Scholte liquid medium modified Mueller's growth medium, ammonium sulfate, modified Mueller-Miller casamino acid medium (without beef heart infusion), aluminum phosphate, modified Stainer-Scholte medium (added casamino acids and dimethyl-beta-cyclodextrin), glutaraldehyde, formaldehyde, MRC-5 cells (with added Medium 199 without calf serum)	polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B, aluminum hydroxide, sodium chloride, formaldehyde aluminum phosphate, 2-phenoxyethanol, water, polysorbate 80, formaldehyde, glutaraldehyde, bovine serum albumin, neomycin, polymyxin B sulfate
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed and Inactivated Poliovirus Vaccine Quadracel	Sanofi Pasteur Mar. 2015		

8. **DTap-HepB-IPV Vaccine**
(diphtheria, tetanus, pertussis, hepatitis B, & polio)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed, Hepatitis B (Recombinant) and Inactivated Poliovirus Vaccine Combined Pediarix	GlaxoSmithKline Biologicals 2016	formaldehyde, gluteraldehyde, aluminum hydroxide, aluminum phosphate, lactalbumin hydrolysate, calf serum, Fenton medium (containing bovine extract), modified Latham medium (derived from bovine casein), modified Stainer-Scholte liquid medium, Vero cells	polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B, yeast protein, aluminum salts, sodium chloride, formaldehyde

9. **DTap-IPV/Hib Vaccine**
(diphtheria, tetanus, pertussis, polio, & haemophilus influenzae type B)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed, Inactivated Poliovirus and Haemophilus b Conjugate (Tetanus Toxoid Conjugate) Vaccine Pentacel	Sanofi Pasteur, Inc. 2013	aluminum phosphate, formaldehyde, glutaraldehyde, 2-phenoxyethanol, modified Mueller’s Growth Medium, Mueller-Miller casamino acid medium (without beef heart infusion), modified Stainer-Scholte medium (with added casamino acids, dimethyl-beta-cyclodextrin), MRC-5 cells, CMRL 1969 medium (supplemented with calf serum), ammonium sulfate, water, Medium 199 (without calf serum)	polysorbate 80, bovine serum albumin, neomycin, sucrose, glutaraldehyde, polymyxin B sulfate, aluminum phosphate, formaldehyde, 2-phenoxyethanol

10. **Hib Vaccine**
(haemophilus influenzae type B)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Haemophilus b Conjugate Vaccine (Tetanus Toxoid	Sanofi Pasteur, Inc.	ammonium sulfate, Modified Mueller and Miller medium, saline diluent, formaldehyde,	sucrose, purified capsular

Conjugate) <u>ActHIB</u>	May 2016	casein derivatives	polysaccharide
Haemophilus b Conjugate Vaccine (Tetanus Toxoid Conjugate) <u>Hiberix</u>	GlaxoSmithKline <u>Biologicals</u> 2016	formaldehyde, synthetic medium, semi-synthetic medium, saline diluent, lactose	lactose, sodium chloride, formaldehyde, purified capsular polysaccharide
Haemophilus B Conjugate Vaccine (Meningococcal Protein Conjugate) <u>Liquid PedvaxHIB</u>	Merck Sharp & <u>Dohme Corp.</u> Dec. 2010	complex fermentation media, ethanol	amorphous aluminum hydroxyphosphate sulfate, sodium chloride

11.

Hib/Hep B Vaccine

(haemophilus influenzae type B & hepatitis B)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Haemophilus b Conjugate (Meningococcal Protein Conjugate) and Hepatitis B (Recombinant) Vaccine <u>COMVAX*</u> *This vaccine has been discontinued.	<u>Merck & Co., Inc.</u> Dec. 2010	yeast (vaccine contains no detectable yeast DNA), nicotinamide adenine dinucleotide, hemin chloride, soy peptone, dextrose, mineral salts, amino acids, formaldehyde, potassium aluminum sulfate, amorphous aluminum hydroxyphosphate sulfate, sodium borate	aluminum hydroxyphosphate sulphate, sodium chloride, formaldehyde

12.

Hep A Vaccine

(hepatitis A)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Hepatitis A Vaccine, Inactivated <u>Havrix</u>	<u>GlaxoSmithKline Biologicals</u> 2016	MRC-5 cells	aluminum hydroxide, amino acid supplement, polysorbate 20, formaldehyde, neomycin sulfate, phosphate buffered saline, MRC-5 cellular proteins, aminoglycoside antibiotic
Hepatitis A		amorphous aluminum	bovine albumin, sodium

Vaccine, Inactivated VAQTA	<u>Merck & Co., Inc.</u> Dec. 2010	hydroxyphosphate sulfate, formaldehyde, neomycin, MRC-5 fibroblasts	borate, formaldehyde, non- viral proteins, sodium chloride, neomycin
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13. **Hep B Vaccine
(hepatitis B)**

<u>PROPER NAME</u> COMMERCIAL NAME (click for package insert)	<u>MANUFACTURER</u> PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
<u>Hepatitis B Vaccine (Recombinant)</u> Engerix-B	<u>GlaxoSmithKline Biologicals</u> 2016	aluminum hydroxide	aluminum hydroxide, yeast protein, phosphate buffers, sodium chloride, sodium dihydrogen, phosphate dihydrate
<u>Hepatitis B Vaccine (Recombinant)</u> Recombivax	<u>Merck & Co., Inc.</u> 2014	yeast protein, soy peptone, dextrose, amino acids, mineral salts, alum (potassium aluminum sulfate), amorphous aluminum hydroxyphosphate sulfate, formaldehyde	formaldehyde, yeast protein, aluminum

14. **Hep A/Hep B Vaccine
(hepatitis A & hepatitis B)**

<u>PROPER NAME</u> COMMERCIAL NAME (click for package insert)	<u>MANUFACTURER</u> PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
<u>Hepatitis A Inactivated & Hepatitis B (Recombinant) Vaccine</u> Twinrix	<u>GlaxoSmithKline Biologicals</u> 2016	yeast protein, MRC-5 cells, formaldehyde, aluminum salts	neomycin sulfate, MRC-5 cell proteins, formaldehyde, yeast protein, water, aluminum phosphate, aluminum hydroxide, amino acids, sodium chloride, phosphate buffer, polysorbate 20

15. **HPV Vaccine
(human papillomavirus)**

<u>PROPER NAME</u> COMMERCIAL NAME (click for package insert)	<u>MANUFACTURER</u> PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
<u>Human Papillomavirus Bivalent (Types 16 and 18) Vaccine,</u>	<u>GlaxoSmithKline Biologicals</u>	vitamins, amino acids, lipids, mineral salts, aluminum (as hydroxide salt), sodium dihydrogen phosphate	insect cell and viral protein, sodium chloride, aluminum hydroxide, bacterial cell

<u>Recombinant Cervarix</u>	2016	dihydrate, sodium chloride, water	protein, sodium dihydrogen phosphate
<u>Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant Gardasil</u>	<u>Merck & Co., Inc.</u> 2015	yeast protein, vitamins, amino acids, mineral salts, carbohydrates, amorphous aluminum hydroxyphosphate sulfate, aluminum-containing adjuvant	L-histidine, polysorbate 80, sodium borate, amorphous aluminum hydroxyphosphate sulfate adjuvant, sodium chloride, yeast protein, water
<u>Human Papillomavirus 9-valent Vaccine, Recombinant Gardasil 9</u>	<u>Merck & Co., Inc.</u> 2015	vitamins, amino acids, mineral salts, carbohydrates, yeast cells, aluminum-containing adjuvant (Amorphous Aluminum Hydroxyphosphate Sufate)	aluminum (Amorphous Aluminum Hydroxyphosphate Sulfate, sodium chloride, L-histidine, polysorbate 80, sodium borate, yeast protein, water

16. **Influenza A (H1N1) Vaccine (swine flu)**

<u>PROPER NAME</u> <u>COMMERCIAL NAME</u> (click for package insert)	<u>MANUFACTURER</u> <u>PACKAGE INSERT</u> <u>DATE</u>	<u>GROWTH MEDIUMS & PROCESS</u> <u>INGREDIENTS</u>	<u>VACCINE INGREDIENTS</u> (not in order of quantity; see package insert for quantities)
<u>Influenza A (H1N1) 2009 Monovalent Vaccine</u> --	<u>CSL Unlimited</u> Nov. 2009	allantoic fluid of chicken eggs, sucrose, beta-Propiolactone, sodium, taurodeoxycholate, phosphate buffered isotonic solution	sodium chloride, monobasic sodium phosphate, dibasic sodium phosphate, monobasic potassium phosphate, potassium chloride, calcium chloride, sodium taurodeoxycholate, ovalbumin, neomycin sulfate, polymyxin B, beta-propiolactone
<u>Influenza A (H1N1) 2009 Monovalent Vaccine</u> --	<u>ID Biomedical Corporation of Quebec</u> Jan. 2010	allantoic cavity of embryonated hens' eggs, formaldehyde, sodium deoxycholate, phosphate-buffered saline solution	thimerosal, egg proteins, formaldehyde, sodium deoxycholate
<u>Influenza A (H1N1) 2009 Monovalent Vaccine</u> --	<u>MedImmune LLC</u> Sep. 2009	specific pathogen-free (SPF) chicken eggs, sucrose, potassium phosphate	monosodium glutamate, hydrolyzed porcine gelatin, arginine, sucrose, dibasic potassium phosphate, monobasic potassium phosphate, gentamicin sulfate

Influenza A (H1N1) 2009 Monovalent Vaccine --	Sanofi Pasteur, Inc Sep. 2009	embryonated chicken eggs, formaldehyde, sucrose density solution, polyethylene glycol p-isooctylphenyl ether (Triton X-100), sodium phosphate buffered isotonic chloride solution	gelatin, formaldehyde, polyethylene glycol p- isooctylphenyl ether, sucrose
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17. **Influenza A (H5N1) Vaccine
(bird flu)**

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Influenza Virus Vaccine (H5N1) --	ID Biomedical Corporation of Quebec 2013	phosphate buffered saline solution, allantoic cavity of embryonated hen's eggs, formaldehyde, sodium deoxycholate, DL-a- tocopherol, polysorbate 80	thimerosal, squalene, DL-a- tocopherol, polysorbate 80, ovalbumin, formaldehyde, sodium deoxycholate
Influenza A (H1N1) 2009 Monovalent Vaccine --	Sanofi Pasteur, Inc 2007	embryonated chicken eggs, formaldehyde, linear sucrose density gradient solution, nonionic surfactant, polyethylene glycol p- isooctylphenyl ether (Triton X- 100), sodium phosphate buffered isotonic sodium chloride solution	porcine gelatin, thimerosal, formaldehyde, Polyethylene Glycol p-isooctylphenyl Ether, sucrose

18. **Influenza Vaccine
(flu)**

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Influenza Virus Vaccine Afluria (Trivalent)	Seqirus Pty. Ltd. 2016-2017	beta-propiolactone, sodium taurodeoxycholate, allantoic fluid of embryonated chicken eggs, sucrose density agent, phosphate buffered isotonic solution	thimerosal (multi-dose vials only), monobasic sodium phosphate, dibasic sodium phosphate, monobasic potassium phosphate, potassium chloride, calcium chloride, sodium taurodeoxycholate, neomycin sulfate, polymyxin B, ovalbumin, mercury, sodium,

			chloride, beta-propiolactone, sucrose
<u>Influenza Virus Vaccine</u> Agriflu* *This vaccine has been discontinued.	<u>Novartis Vaccines and Diagnostics, Inc.</u> Feb. 21, 2013	kanamycin, neomycin sulfate, cetyltrimethylammonium bromide, allantoic cavity of embryonated hens' eggs	formaldehyde, egg protein, polysorbate 80, CTAB, neomycin, kanamycin
<u>Influenza Vaccine, Adjuvanted</u> Fluad (Trivalent)	<u>Seqiris, Inc.</u> 2016-2017	allantoic cavity of embryonated hen's eggs, MF59C.1 adjuvant (MF59), formaldehyde, cetyltrimethylammonium bromide (CTAB)	MF59C.1 adjuvant (squalene, polysorbate 80, sorbitan trioleate, sodium citrate dihydrate, citric acid monohydrate), neomycin, kanamycin, barium, egg proteins, formaldehyde, cetyl trimethylammonium bromide (CTAB)
<u>Influenza Virus Vaccine</u> Fluarix Quadrivalent	<u>GlaxoSmithKline Biologicals</u> 2016-2017	embryonated chicken eggs, sodium phosphate-buffered isotonic sodium chloride solution, sodium deoxycholate, formaldehyde, linear sucrose density gradient solution (contains detergent)	octoxynol-10 (Triton X-100), a-tocopheryl hydrogen succinate, polysorbate 80 (Tween 80), gentamicin sulfate, ovalbumin, hydrocortisone, formaldehyde, sodium deoxycholate
<u>Influenza Virus Vaccine</u> Fluarix Trivalent	<u>GlaxoSmithKline Biologics</u> 2015-2016	embryonated chicken eggs, linear sucrose density gradient solution (containing detergent), sodium deoxycholate, formaldehyde, sodium phosphate buffered isotonic sodium chloride solution	octoxynol-10 (Triton 272 X0100), a-tocopheryl hydrogen succinate, polysorbate 80 (Tween 80), hydrocortisone, gentamicin sulfate, ovalbumin, formaldehyde, sodium deoxycholate
<u>Influenza Vaccine</u> Flublok (Trivalent)	<u>Protein Sciences Corporation</u> 2016-2017	HA insect cell (fall armyworm, <i>Spodoptera frugiperda</i>) proteins, lipids, vitamins, amino acids, mineral salts, Triton X-100	sodium chloride, monobasic sodium phosphate, dibasic sodium phosphate, polysorbate 20 (Tween 20), host cell proteins, baculovirus, Triton X-100, host cell DNA
<u>Influenza Vaccine</u> Flucelvax (Quadrivalent)	<u>Seqiris, Inc.</u> May 23, 2016	Madin Darby Canine Kidney (MDCK) cells, B-propiolactone, cetyltrimethylammonium	MDCK cell protein, protein other than HA, MDCK cell DNA, polysorbate 80, cetyltrimethylammonium

		bromide, phosphate buffered saline	bromide, B-propiolactone
Influenza Virus Vaccine Flucelvax (Trivalent)	Seqiris, Inc. Apr. 2016	Madin Darby Canine Kidney (MDCK) cells, B-propiolactone, cetyltrimethylammonium bromide	MDCK cell protein, other cell proteins, MDCK cell DNA, polysorbate 80, cetyltrimethylammonium bromide, B-propiolactone
Influenza Virus Vaccine FluLaval (Quadrivalent)	ID Biomedical Corporation of Quebec 2016-2017	allantoic cavity of embryonated hens' eggs, formaldehyde, sodium deoxycholate	thimerosal, ovalbumin, formaldehyde, sodium deoxycholate, a-tocopheryl hydrogen succinate, polysorbate 80
Influenza Virus Vaccine FluLaval (Trivalent)	ID Biomedical Corporation of Quebec 2015-2016	allantoic cavity of embryonated hens' eggs, formaldehyde, sodium deoxycholate	phosphate-buffered saline solution, thimerosal (multi-dose vaccine only), ovalbumin, formaldehyde, sodium deoxycholate, a-tocopheryl hydrogen succinate, polysorbate 80
Influenza Virus Vaccine Live, Intranasal FluMist Quadrivalent	MedImmune, LLC 2016-2017	SPF (specific pathogen-free) eggs, stabilizing buffer, sucrose, potassium phosphate	monosodium glutamate, hydrolyzed porcine gelatin, arginine, sucrose, dibasic potassium phosphate, monobasic potassium phosphate, ovalbumin, gentamicin sulfate, ethylenediaminetetraacetic acid (EDTA)
Influenza Virus Vaccine Fluvirin	Seqiris Vaccines, Ltd. 2016-2017	allantoic cavity of embryonated hens' eggs, neomycin, polymyxin, betapropiolactone, nonylphenol ethoxylate	phosphate-buffered saline, thimerosal, egg proteins, polymyxin, neomycin, betapropiolactone, nonylphenol ethoxylate
Influenza Virus Vaccine Fluzone (Quadrivalent): Standard, High Dose, & Intradermal	Sanofi Pasteur, Inc. 2016-2017	embryonated chicken eggs, Octylphenol Ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, formaldehyde, linear sucrose density gradient solution	formaldehyde, octylphenol ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, gelatin (standard formulation only), thimerosal (standard dosage multi-dose vial only)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Japanese Encephalitis Vaccine, Inactivated, Adsorbed Ixiaro	Intercell Biomedical 2016	Vero cells, protamine sulfate, formaldehyde, aluminum hydroxide	formaldehyde, bovine serum albumin, host cell DNA, sodium metabisulphite, host cell proteins, protamine sulphate
Japanese Encephalitis Vaccine, Inactivated JE-Vax* *This vaccine has been discontinued.	Research Foundation for Microbial Diseases of Osaka University Dec. 2005	mice (brains are inoculated with the virus), phosphate-buffered saline, formaldehyde, 40% w/v sucrose	thimerosal, Sterile Water for Injection, gelatin, formaldehyde, v/v Polysorbate 80, mouse serum protein

20.

Measles Vaccine

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Measles Virus Vaccine, Live Attenuvax* *This vaccine has been discontinued.	Merck &Co., Inc. Feb. 2006	chick embryo cell culture, buffered salt solution, vitamins, amino acides, fetal bovine serum, SPGA (sucrose, phosphate, glutamate, human albumin), neomycin	sorbitol, sodium phosphate, sucrose, sodium, chloride, hydrolyzed gelatin, human albumin, fetal bovine serum, neomycin, other buffer and media ingredients

21.

Meningococcal Vaccine (meningitis)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Meningococcal Group B Vaccine Bexsero	Novartis Vaccines and Diagnostics 2015	factor H binding protein (fHbp), Outer Membrane Vesicles (OMV), aluminum hydroxide, sodium chloride, histidine, sucrose, <i>Escherichia coli</i> (<i>E. coli</i>), deoxycholate	kanamycin
Meningococcal (Serogroups A, C, Y and W-135)Polysaccharide Diphtheria Toxoid Conjugate Vaccine	Sanofi Pasteur Inc. 2014	Mueller Hinton agar, Watson Scherp media (containing casamino acid), formaldehyde, ammonium sulfate, modified culture medium (containing	formaldehyde, sodium phosphate buffered isotonic sodium chloride solution

MCV4-Menactra		hydrolyzed casein)	
Meningococcal Groups C and Y and Haemophilus b Tetanus Toxoid Conjugate Vaccine	GlaxoSmithKline Biologicals	semi-synthetic media, formaldehyde, sucrose, saline diluent, sterile saline solution	Tris (trometamol)-HCL, sucrose, formaldehyde, saline diluent
MenHibrix			
Meningococcal (Groups A, C, Y, and W-135) Oligosaccharide Diphtheria CRM197 Conjugate Vaccine	Novartis Vaccines and Diagnostics, Inc.	Franz Complete medium, formaldehyde, CY medium (contains yeast extracts and amino acids), purified polysaccharides, CRM197 protein	formaldehyde
Menveo			
Meningococcal Polysaccharide Vaccine, Groups A, C, Y, W135 Combined	Sanofi Pasteur Inc.	Mueller Hinton casein agar, Watson Scherp casamino acid media	distilled water, thimerosal, polysaccharide from serogroups A, C, Y, and w-135, mercury, lactose
Menomune-A/C/Y/W-135			
Meningococcal Group B Vaccine	Wyeth Pharmaceuticals, Inc.	<i>E. coli</i> , defined fermentation growth media, polysorbate 80 (PS80)	polysorbate 80 (PS80), Al3+ (as AlPO4), mM histidine buffered saline
Trumenba			

22.

MMR Vaccine

(measles, mumps, & rubella)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Measles, Mumps, and Rubella Virus Vaccine, Live	Merck and Co., Inc.	chick embryo cell culture, WI-38 human diploid lung fibroblasts, Medium 199 (containing vitamins, amino acids, fetal bovine serum, SPGA (sucrose, phosphate, glutamate, recombinant human albumin), neomycin, Minimum Essential Medium (containing vitamins, amino acids, fetal bovine serum, recombinant human albumin, neomycin), sorbitol,	sorbitol, sodium phosphate, sucrose, sodium chloride, hydrolyzed gelatin, recombinant human albumin, fetal bovine serum, other buffer and media ingredients, neomycin
M-M-R-II	Oct. 2015		

		hydrolyzed gelatin stabilizer	
Measles, Mumps, Rubella and Varicella Virus Vaccine Live	Merck and Co., Inc.	chick embryo cell culture, WI-38 human diploid lung fibroblasts, MRC-5 cells, bovine serum, recombinant human albumin	sucrose, hydrolyzed gelatin, urea (refrigerator stable formulation only), sodium chloride, sorbitol, monosodium L-glutamate, sodium phosphate, recombinant human albumin, sodium bicarbonate, potassium phosphate, potassium chloride, components of MRC-5 cells (including DNA and protein), neomycin, bovine serum albumin, other buffer and media ingredients, sodium phosphate dibasic (frozen formulation only), potassium phosphate monobasic (frozen formulation only), potassium phosphate dibasic (frozen formulation only)
ProQuad, Refrigerator Stable Formulation and Frozen Formulation	Oct. 2015		

23. **Pneumococcal Vaccine (pneumonia)**

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Pneumococcal 7-valent Conjugate Vaccine (Diphtheria CRM197 Protein) Prevnar* *This vaccine has been discontinued.	Wyeth Pharmaceuticals Inc. Mar. 2009	soy peptone broth, casamino acids and yeast extract-based medium, ammonium sulfate, saccharides	aluminum (as aluminum phosphate adjuvant)
Pneumococcal 13-valent Conjugate Vaccine (Diphtheria CRM197 Protein) Prevnar 13	Wyeth Pharmaceuticals Inc. 2016	soy peptone broth, casamino acids and yeast extract-based medium, ammonium sulfate, CRM 197	polysorbate 80, succinate buffer, aluminum (as aluminum phosphate adjuvant)
Pneumococcal Vaccine, Polyvalent Pneumovax-23	Merck & Co., Inc. May 2014	--	isotonic saline solution, phenol

24. Polio Vaccine			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Poliovirus Vaccine Inactivated (Monkey Kidney Cell) IPOL	Sanofi Pasteur, SA 2015	Vero cells, Eagle MEM modified medium, newborn calf serum, M-199 (without calf serum)	2-phenoxyethanol, formaldehyde, neomycin, streptomycin, polymyxin B, calf bovine serum albumin

25. Rabies Vaccine			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Rabies Vaccine IMOVAX	Sanofi Pasteur, SA Apr. 25, 2013	MRC-5 cells, beta-propiolactone	human albumin, neomycin sulfate, phenol red indicator, beta-propiolactone
Rabies Vaccine RabAvert	Novartis Vaccines and Diagnostics Nov. 2013	chicken fibroblasts, synthetic cell culture medium (with added human albumin), polygeline (processed bovine gelatin), antibiotics, B-propiolactone, sucrose density-gradient, buffered polygeline, potassium glutamate	polygeline (processed bovine gelatin), human serum albumin, potassium glutamate, sodium EDTA, bovine serum, chicken protein, chicken ovalbumin, neomycin, chlortetracycline, amphotericin B, water for injection

26. Rotavirus Vaccine			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Rotavirus Vaccine, Live, Oral, Pentavalent RotaTeq	Merck & Co., Inc. June 2013	Vero cells, buffered stabilizer, porcine-derived materials	sucrose, sodium citrate, sodium phosphate monobasic monohydrate, sodium hydroxide, polysorbate 80, cell culture media, fetal bovine serum, DNA for porcine circoviruses
Rotavirus Vaccine,	GlaxoSmithKline	Vero cells, porcine-derived materials, amino acids, dextran, Dulbecco's Modified Eagle Medium (sodium chloride, potassium chloride, magnesium sulfate, ferric (III)	calcium carbonate, sterile

Live, Oral	Biologicals	nitrate, sodium phosphate,	water, xanthan, porcine
Rotarix	2016	sodium pyruvate, D-glucose,	cirrovirus type 1
		concentrated vitamin solution,	
		L-cystine, L-tyrosine, amino	
		acids solution, L-glutamine,	
		calcium chloride, sodium	
		hydrogenocarbonate, phenol	
		red), sorbitol, sucrose	

27. Rubella Vaccine

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Rubella Virus Vaccine Live MERUVAX II* *This vaccine has been discontinued.	Merck & Co., Inc. Feb. 2006	WI-38 human diploid lung fibroblasts, Minimum Essential Medium (MEM; buffered salt solution (vitamins, amino acids, bovine serum), human serum albumin, neomycin), sorbitol, hydrolyzed gelatin stabilizer	sorbitol, sodium phosphate, sucrose, sodium chloride, hydrolyzed gelatin, human albumin, fetal bovine serum, other buffer and media ingredients, neomycin

28. Smallpox Vaccine

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Smallpox (Vaccinia) Vaccine, Live ACAM2000	Sanofi Pasteur Biologics Co. Dec. 2015	Vero cells, human serum albumin, sodium chloride, mannitol, neomycin, polymyxin B, Dryvax	glycerin, phenol in Water for Injection

29. TD Vaccine (tetanus & diphtheria)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Tetanus and Diphtheria Toxoids Adsorbed For Adult Use DECAVAC* *This vaccine has been discontinued.	Sanofi Pasteur, Inc. Mar. 2011	Mueller and Miller medium, peptone-based medium, extract of bovine muscle tissue, formaldehyde, ammonium sulfate	thimerosal, aluminum potassium sulfate adjuvant, formaldehyde
Tetanus and		modified Mueller-Miller casamino acid medium	

Diphtheria Toxoids Adsorbed For Adult Use TENIVAC	Sanofi Pasteur, Ltd. Apr. 2013	(without beef heart infusion), formaldehyde, ammonium sulfate, modified Mueller's growth medium, aluminum phosphate	aluminum phosphate, formaldehyde, sodium chloride, water for injection
Tetanus and Diphtheria Toxoids, Adsorbed --	Mass Biologics Feb. 2011	modified Mueller's media (contains bovine extracts), formaldehyde, ammonium sulfate, aluminum phosphate	aluminum adjuvant, formaldehyde, thimerosal
Tetanus Toxoid --* *This vaccine has been discontinued.	Sanofi Pasteur, Inc. Dec. 2005	peptone-based medium, formaldehyde, ammonium sulfate, physiological saline solution	thimerosal, formaldehyde
Tetanus Toxoid Adsorbed --* *This vaccine has been discontinued.	Sanofi Pasteur, Inc. July 2005	peptone-based medium (contains extract ofbovine muscle tissue), formaldehyde, ammonium sulfate, aluminum potassium sulfate (alum)	thimerosal, physiological saline solution

30.

Tdap Vaccine
(tetanus, diphtheria, & pertussis)

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed Adacel	Sanofi Pasteur, Ltd. 2015	modified Stainer-Scholte medium (added casamino acid, dimethyl-beta- cyclodextrin), glutaraldehyde, formaldehyde, aluminum phosphate, modified Mueller- Miller casamino acid medium (without beef heart infusion), ammonium sulfate, 2- phenoxyethanol, water for injection	aluminum phosphate, formaldehyde, glutaraldehyde, 2-phenoxyethanol, water for injection
Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed Boostrix	GlaxoSmithKline Biologicals 2016	modified Latham medium derived from bovine casein, Fenton medium (containing bovine extract), formaldehyde, modified Stainer-Scholte liquid medium, glutaraldehyde, aluminum hydroxide	aluminum hydroxide, sodium chloride, formaldehyde, polysorbate 80 (Tween 80)

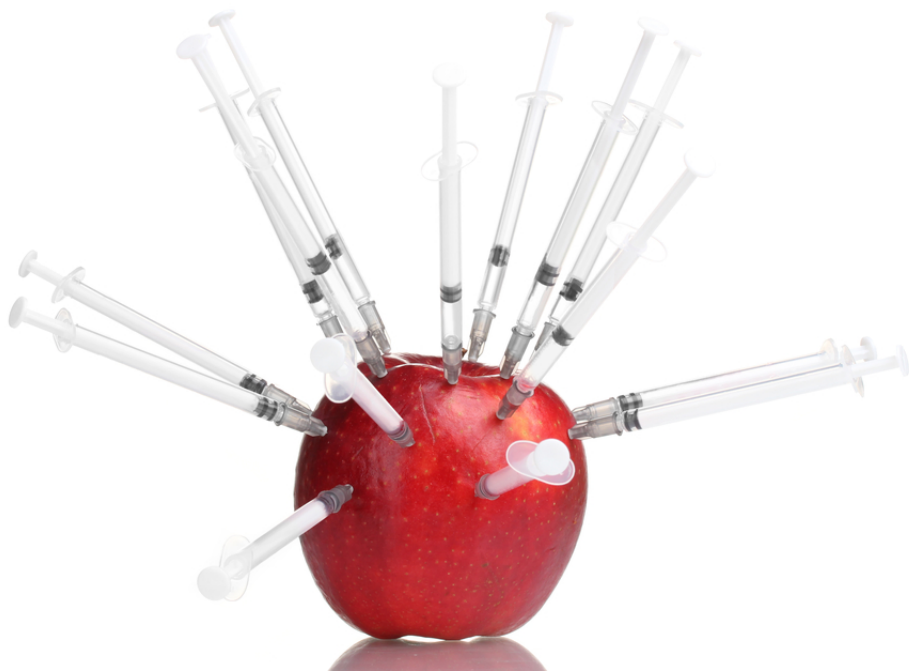
31. Typhoid Vaccine			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Typhoid Vi Polysaccharide Vaccine Typhim Vi	Sanofi Pasteur SA Mar. 2014	semi-synthetic medium, hexadecyltrimethylammonium bromide yeast extract, casein, dextrose, and galactose, sucrose, ascorbic acid, amino acids, lactose, magnesium stearate	formaldehyde, phenol, polydimethylsiloxane or fatty-acid ester-cased antifoam, isotonic phosphate buffered saline, sodium chloride, disodium phosphate, monosodium phosphate, sterile water for injection, vi polysaccharide sucrose, ascorbic acid, amino acid mixture, lactose, magnesium stearate

32. Varicella Vaccine (chickenpox)			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Varicella Virus Vaccine, Live Varivax, Frozen and Refrigerated	Merck & Co., Inc. Dec. 2012	human embryonic lung cell cultures, embryonic guinea pig cell cultures, WI-38 human diploid cell cultures, MRC-5 human diploid cell cultures, sucrose, phosphate, glutamate, processed gelatin, urea (refrigerated vaccine only)	sucrose, hydrolyzed gelatin, urea (refrigerated vaccine only), sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, components of MRC-5 cells (DNA, protein), neomycin, bovine calf serum, sodium phosphate monobasic, EDTA, fetal bovine serum

33. Yellow Fever Vaccine			
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Yellow Fever Vaccine YF-Vax	Sanofi Pasteur, Inc. June 2016	living avian leukosis virus-free (ALV-free) chicken embryos	sorbitol, gelatin, sterile diluent (sodium chloride)

34. **Zoster Vaccine
(shingles)**

PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Zoster Vaccine, Live Zostavax, Frozen and Refrigerator Stable	Merck & Co., Inc. Feb. 2016 --		sucrose, hydrolyzed porcine gelatin, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, components of MRC- 5 cells (DNA, protein), neomycin, bovine calf serum, urea (refrigerator stable only)



II. GLOSSARY AND DETAILS FOR INGREDIENTS

Product	Possible Ingredients (Ingredients depend on which modification is used.)
2-Phenoxyethanol	2-Phenoxyethanol is a glycol ether used as a preservative in vaccines.
Aluminum	Aluminum is used in vaccines as an adjuvant, which helps the vaccine work more quickly and more powerfully.
Bovine casein	A casein is a family of phosphoproteins commonly found in mammalian milk. 80% of the proteins in cow's milk are casein.

Bovine serum	Bovine "[s]erum is the centrifuged fluid component of either clotted or defibrinated whole blood. Bovine serum comes from blood taken from domestic cattle. Serum from other animals is also collected and processed but bovine serum is processed in the greatest volume." "Bovine serum is a by-product of the meat industry. Bovine blood may be taken at the time of slaughter, from adult cattle, calves, very young calves or (when cows that are slaughtered are subsequently found to be pregnant) from bovine fetuses. It is also obtained from what are called 'donor' animals, which give blood more than once. Blood is available from bovine fetuses only because a proportion of female animals that are slaughtered for meat for human consumption are found (often unexpectedly) to be pregnant. Blood is available from very young calves because calves, especially males from dairy breeds, are often slaughtered soon, but not necessarily immediately, after birth because raising them will not be economically beneficial. Older animals are, of course, slaughtered for meat. Only donor cattle are raised for the purpose of blood donation. Donor cattle are invariably kept in specialized, controlled herds. Blood is taken from these animals in a very similar way to that used for human blood donation. Irrespective of whether blood is taken at slaughter or from donors, the age of the animal is an important consideration because it impacts the characteristics of the serum. Bovine serum is categorised according to the age of the animal from which the blood was collected as follows: •'Fetal bovine serum' comes from fetuses •'Newborn calf serum' comes from calves less than three weeks old •'Calf serum' comes from calves aged between three weeks and 12 months •'Adult bovine serum' comes from cattle older than 12 months Serum processed from donor blood is termed 'donor bovine serum'. Donor animals can be up to three years old."
Chicken Eggs	Viruses can be grown in chicken eggs before being used in vaccinations.
CMRL-1969	L-alanine, L-arginine (free base)^b, L-aspartic acid, L-cysteine-HCL, L-cystine, L-glutamic acid-H₂O, L-glutamine, glycine, L-histidine (free base)^b, L-hydroxyproline, L-isoleucine, L-leucine, L-lysine, L-methionine, L-phenylalanine, L-proline, L-serine, L-threonine, L-tryptophan, L-tyrosine, L-valine, <i>p</i>-aminobenzoic acid, ascorbic acid, <i>d</i>-biotin, calcium pantothenate, cholesterol, choline chloride, ethanol, folic acid,

glutathione, inositol, menadione, nicotinamide, nicotinic acid, pyridoxal-HCL, pyridoxine-HCL, riboflavine, riboflavine-5-phosphate, sodium acetate-3H₂O, thiamine-HCL, Tween 80, vitamin A acetate, vitamin D (calciferol), vitamin E (α-tocopherol phosphate), D-glucose, phenol red, sodium chloride, potassium chloride, calcium chloride, magnesium sulphate heptahydrate, sodium phosphate dibasic, sodium dihydrogen phosphate, monopotassium phosphate, sodium bicarbonate, iron nitrate nonahydrate

Dulbecco's Modified Eagle's Serum glucose, sodium bicarbonate, L-glutamine, pyridoxine HCl, pyridoxal HCl, folic acid, phenol red, HEPES (2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid), L-methionine, L-cystine, sodium phosphate mono-basic, sodium pyruvate, vitamins

Earle's Balanced Salt Medium inorganic salts, D-glucose, phenol red, calcium, magnesium salts

Fenton Medium bovine extract

Formaldehyde Formaldehyde is used in vaccines to inactivate the virus so the person being inoculated does not contract the disease.

Human albumin Human albumin is a blood plasma protein produced in the liver that, among other functions, transports hormones, fatty acids, and other compounds, and buffers pH.

Insect Cells Cabbage moth and fall armyworm cells are used to grow viruses for vaccines.

Latham Medium bovine casein

MDCK (Madin-Carby canine kidney cells) cells from normal female adult Cocker Spaniel (harvested in 1958 by SH Madin and NB Darby), EMEM(EBSS) (Eagle's Minimum Essential Medium with Earle's Balanced Salt Solution), glutamine, non essential amino acids, foetal bovine serum

Mouse Brains Live mice brains are inoculated with the Japanese encephalitis virus to grow the virus used in the vaccine.

MRC-5 Medical Research Council 5, human diploid cells (cells containing two sets of chromosomes) derived from the normal lung tissues of a 14-week-old male fetus aborted for "psychiatric reasons" in 1966 in the United Kingdom, Eagle's Basal Medium in Earle's balanced salt solution with bovine serum.

Mueller Hinton Agar beef extract, acid hydrolysate of casein, starch, agar

Mueller-Miller Medium glucose, sodium chloride, sodium phosphate dibasic, monopotassium, phosphate, magnesium sulfate hydrate, ferrous sulfate heptahydrate, cystine hydrochloride, tyrosine hydrochloride, urasil hydrochloride, Ca-pantothenate in ethanol, thiamine in

ethanol, pyridoxin-hydrochloride in ethanol, riboflavin in ethanol, biotin in ethanol, sodium hydroxide, beef heart infusion (de-fatted beef heart and distilled water), casein solution

Polysorbate 80 Also called Tween 80, Alkest 80, or Canarcel 80 (brand names). Polysorbate 80 is used as an excipient (something to basically thicken a vaccine for proper dosing) and an emulsifier (something to bond the ingredients).

Porcine gelatin Gelatin is used to protect viruses in vaccines from freeze-drying or heat and to stabilize vaccines so they stay stable.

Stainer-Scholte Liquid Medium tris hydrochloride, tris base, glutamate (monosodium salt), proline, salt, monopotassium phosphate, potassium chloride, magnesium chloride, calcium chloride, ferrous sulfate, ascorbic acid, niacin, glutathione

Thimerosal Thimerosal is an organomercury compound used as a preservative.

Vero Cells (African Green Monkey Cells) cells derived from the kidney of a normal, adult African Green monkey in 1962 by Y. Yasumura and Y. Kawakita

WI-38 human diploid cells Winstar Institute 38, human diploid lung fibroblasts derived from the lung tissues of a female fetus aborted because the family felt they had too many children in 1964 in the United States



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