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Vaccine Ingredients and Manufacturer Information
(alphabetical order by vaccine)

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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 31 vaccines commonly recommended by the Food & Drug Administration (FDA) and 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.

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I. VACCINES AND INGREDIENTS

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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)	human-diploid fibroblast cell cultures (WI-38), Dulbecco's Modified Eagle's Medium,	sucrose, D-mannose, D-fructose, dextrose, potassium phosphate, plasdone C, anhydrous lactose, micro crystalline cellulose, polacrilin potassium, magnesium stearate, cellulose

–	Mar. 2011	fetal bovine serum, sodium bicarbonate	acetate phthalate, alcohol, acetone, castor oil, FD&C Yellow #6 aluminum lake dye, human serum albumin

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 Absorbed / Biothrax	Emergent Biosolutions / Dec. 2008	amino acids, vitamins, inorganic salts and sugars	aluminum hydroxide, benzethonium chloride, formaldehyde

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)
BCG Live / Tice BCG	Organon Teknika Corp. / Feb. 2009	glycerin, asparagine, citric acid, potassium phosphate, magnesium sulfate, iron ammonium citrate	lactose, saline

4. 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 Absorbed / –	Sanofi Pasteur, Ltd. / Dec. 2005	peptone, bovine extract, modified Mueller and Miller medium	aluminum sulfate, formaldehyde, thimerosal (trace)

5. 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 Accellular Pertussis Vaccine Absorbed / Daptacel	Sanofi Pasteur, Ltd. / July 2011	Stainer-Scholte medium, modified Mueller's growth medium, modified Mueller-Miller casamino acid medium (without beef heart infusion), casamino acids, dimethyl-beta-cyclodextrin, aluminum sulfate, aluminum phosphate	aluminum phosphate, formaldehyde, glutaraldehyde, 2-Phenoxyethanol
Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Absorbed / Infanrix	GlaxoSmithKline Biologicals / Nov. 2011	formaldehyde, glutaraldehyde, Fenton medium (containing bovine extract), modified Latham medium (derived from bovine casein), modified Stainer-Scholte liquid medium	aluminum hydroxide, polysorbate 80, sodium chloride, formaldehyde
Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Absorbed / Tripedia	Sanofi Pasteur, Inc. / Dec. 2005	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	thimerosal (trace), gelatin, polysorbate 80 (Tween 80), formaldehyde, aluminum

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

PROPER NAME / COMMERCIAL NAME	MANUFACTURER / PACKAGE INSERT	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for

(click for package insert)	DATE		quantities)
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed and Inactivated Poliovirus Vaccine Kinrix	GlaxoSmithKline Biologicals Nov. 2011	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	polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B, aluminum hydroxide, sodium chloride, formaldehyde

7. 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 Nov. 2011	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

8. 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. July 2011	aluminum phosphate, formaldehyde, gutaraldehyde, 2-phenoxethanol, Mueller's Growth Medium, Mueller-Miller casamino acid medium (without beef heart infusion), Stainer-Scholte medium, casamino acids, dimethyl-beta-cyclodextrin), MRC-5 cells, CMRL 1969 medium (supplemented with calf serum), ammonium sulfate, water	polysorbate 80, bovine serum albumin, neomycin, polymyxin B sulfate, aluminum phosphate, formaldehyde, 2-phenoxethanol

9. 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 Conjugate) ActHIB	Sanofi Pasteur, Inc. May 2009	ammonium sulfate, formalin, Modified Mueller and Miller medium, saline diluent, formaldehyde	sucrose, purified capsular polysaccharide
Haemophilus b Conjugate Vaccine (Tetanus Toxoid Conjugate) Hiberix	GlaxoSmithKline Biologicals Dec. 2010	formaldehyde, synthetic medium, semi-synthetic medium	lactose, sodium chloride, formaldehyde, purified capsular polysaccharide
Haemophilus B Conjugate Vaccine (Meningococcal	Merck Sharp &		amorphous aluminum hydroxphosphate

Protein Conjugate) Liquid PedvaxHIB	Dohme Corp. Dec. 2010	complex fermentation media, ethanol	sulfate, sodium chloride

10. 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 COMVAX	Merck & Co., Inc. 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

11. 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 Havrix	GlaxoSmithKline Biologicals July 2011	MRC-5 cells, formaldehyde	aluminum hydroxide, amino acid supplement, polysorbate 20, formalin, neomycin sulfate, phosphate buffered saline, residual MRC-5 cellular proteins, aminoglycoside antibiotic
Hepatitis A Vaccine, Inactivated VAQTA	Merck & Co., Inc. Dec. 2010	amorphous aluminum hydroxyphosphate sulfate, formaldehyde, neomycin, MRC-5 fibroblasts	bovine albumin, sodium borate, formaldehyde, non-viral proteins, sodium chloride, neomycin

12. Hep B Vaccine (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)
Hepatitis B Vaccine (Recombinant) Engerix-B	GlaxoSmithKline Biologicals Oct. 2011	–	aluminum hydroxide, yeast protein, phosphate buffers, sodium chloride, disodium phosphate, dihydrate, sodium dihydrogen
Hepatitis B Vaccine (Recombinant) Recombivax	Merck & Co., Inc. July 2011	yeast protein, soy peptone, dextrose, amino acids, mineral salts, potassium aluminum sulfate, amorphous aluminum hydroxyphosphate sulfate, formaldehyde	formaldehyde, yeast protein

13. Hep A/Hep B Vaccine (hepatitis A & 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)
Hepatitis A Inactivated & Hepatitis B (Recombinant) Vaccine Twinrix	GlaxoSmithKline Biologicals Nov. 2011	yeast protein, aluminum phosphate, aluminum hydroxide, amino acids, phosphate buffer, polysorbate 20, MRC-5 cells, formaldehyde, sodium chloride	neomycin sulfate, MRC-5 cell proteins, formaldehyde, yeast protein, water

14. HPV Vaccine (human papillomavirus)

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)
Human Papillomavirus Bivalent (Types 16 and 18) Vaccine, Recombinant / Cervarix	GlaxoSmithKline Biologicals / July 2011	vitamins, amino acids, lipids, mineral salts, aluminum (as hydroxide salt), sodium dihydrogen phosphate dehydrate,	insect cell and viral protein, sodium chloride, water, aluminum hydroxide, bacterial cell protein
Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant / Gardasil	Merck & Co., Inc. / Mar. 2011	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

15. 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	CSL Limited / Apr. 2013	beta-propiolactone, sodium taurodeoxycholate, allantoic fluid of embryonated chicken eggs, sucrose density agent, phosphate buffered isotonic solution	thimerosol (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-propiolacton
Influenza Virus Vaccine / Agriflu	Novartis Vaccines and Diagnostics, Inc. / Feb. 21, 2013	kanamycin, neomycin sulfate, cetyltrimethylammonium bromide, allantoic cavity of embryonated hens' eggs	formaldehyde, egg protein, polysorbate 80, CTAB, neomycin, kanmycin
Influenza Virus Vaccine / Fluarix Quadrivalent	GlaxoSmithKline Biologicals / May 2013	embryonated chicken eggs, sodium phosphate-buffered isotonic sodium chloride solution, sodium deoxycholate, formaldehyde,	octoxynol-10 (Triton X-100), a-tocopheryl hydrogen succinate, polysorbate 80 (Tween 80), hydrocortisone, gentamicin sulfate, ovalbumin, hydrocortisone, formaldehyde, sodium deoxycholate
Influenza Vaccine / Flublok	Protein Sciences Corporation / Oct. 2013	HA insect cell (fall armyworm, *Spodoptera frugiperda*) proteins, lipids, vitamins, amino acids, mineral salts	sodium chloride, monobasic sodium phosphate, dibasic sodium phosphate, polysorbate 20 (Tween 20), host cell proteins, baculovirus, Triton X-100
Influenza Virus Vaccine / Flucelvax	Novartis Vaccines and Diagnostics Limited / Feb. 2013	Madin Darby Canine Kidney (MDCK) cells, B-propiolactone, cetyltrimethylammonium bromide	residual MDCK cell protein, other cell proteins, MDCK cell DNA, polysorbate 80, cetyltrimethylammonium bromide, B-propiolactone
Influenza Virus Vaccine / FluLaval	ID Biomedical Corporation of Quebec / 2013-2014	allantoic cavity of embryonated hens' eggs, formaldehyde, sodium deocycholate	phosphate-buffered saline solution, thimerosal, ovalbumin, formaldehyde, sodium deoxycholate
Influenza Vaccine Live, Intranasal / FluMist Quadrivalent	MedImmune, LLC / 2012-2014	SPF (specific pathogen-free) eggs, stabilizing buffer	monosodium glutamate, hydrolyzed porcine gelatin, arginine, sucrose, dibasic potassium phosphate, monobasic potassium phosphate, ovalbumin, gentamicin sulfate, ethylenediaminetetraacetic acid (EDTA)
Influenza Virus Vaccine / Fluvirin	Novartis Vaccines and Diagnostics Limited / Feb. 26, 2013	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:	Sanofi Pasteur, Inc.	embryonated chicken eggs, Octylphenol Ethoxylate (Triton X-100), sodium	formaldehyde, octylphenol ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, gelatin (standard

Standard, High Dose, & Intradermal	June 2013	phosphate-buffered isotonic sodium chloride solution, formaldehyde	formulation only), thimerosal (standard dosage multi-dose vial only)

16. Japanese Encephalitis 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)
Japanese Encephalitis Vaccine, Inactivated, Adsorbed Ixiaro	Intercell Biomedical Sep. 2010	Vero cells, protamine sulfate, formaldehyde, aluminum hydroxide	aluminum hydroxide, formaldehyde, bovine serum albumin, host cell DNA, sodium metabisulphate, host cell proteins, protamine sulphate
Japanese Encephalitis Vaccine, Inactivated JE-Vax	Research Foundation for Microbial Diseases of Osaka University Dec. 2005	mice (brains are innoculated 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

17. 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	Merck &Co., Inc. Feb. 2006	chick embryo cell culture, buffered salt solution, vitamins, amino acides, fetal bovine serum, SPGA (sucrose, phosphate, gluatamate, human albumin), neomycin	sorbitol, sodium phosphate, sucrose, sodium, chloride, hydrolyzed gelatin, human albumin, fetal bovine serum, neomycin, other buffer and media ingredients

18. 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 Polysaccharide (Serogroups A, C, Y and W-135) Diphtheria Toxoid Conjugate Vaccine MCV4-Menactra	Sanofi Pasteur Inc. Nov. 2011	Mueller Hinton agar, Watson Scherp media, Mueller and Miller medium, formaldehyde, ammonium sulfate	formaldehyde, sodium phosphate buffered isotonic sodium chloride solution,
Meningococcal Groups C and Y and Haemophilus b Tetanus Toxoid Conjugate Vaccine MenHibrix	GlaxoSmithKline Biologicals 2012	synthetic medium, formaldehyde, sucrose, saline diluent	Tris (trometamol)-HCL, sucrose, residual formaldehyde
Meningococcal (Groups A, C, Y, and W-135) Oligosaccharide Diphtheria CRM197 Conjugate Vaccine Menveo	Novartis Vaccines and Diagnostics, Inc. Mar. 2011	Franz Complete medium, formaldehyde, CY medium (contains yeast extracts and amino acids),	formaldehyde
Meningococcal Polysaccharide Vaccine, Groups A, C, Y, W135 Combined Menomune-	Sanofi Pasteur Inc. Jan. 2009	Mueller Hinton casein agar, Watson Scherp casamino acid media	distilled water, thimersol, polysaccharide from serogroups A, C, Y, and w-135, mercury, lactose

A/C/Y/W-135

19. 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 / M-M-R-II	Merck and Co., Inc. / Dec. 2010	chick embryo cell culture, WI-38 human diploid lung fibroblasts, Medium 199 (containing vitamins, amino acids, fetal bovine serum, SPGA (sucrose, phosphate, glutamate, recomninant human albumin), neomycin), Minimum Essential Medium (containing vitamins, amino acids, fetal bovine serum, recombinant human albumin, neomycin), sorbitol, hydrolyzed gelatin stabilizer	sorbitol, sodium phosphate, sucrose, sodium chloride, hydrolyzed gelatin, recombinant human albumin, fetal bovine serum, other buffer and media ingredients, neomycin
Measles, Mumps, Rubella and Varicella Virus Vaccine Live / ProQuad, Refrigerator Stable Formulation and Frozen Formulation	Merck and Co., Inc. / Aug. 2011	chick embryo cell culture, WI-38 human diploid lung fibroblasts, MRC-5 cells, bovine serum, human albumin	sucrose, hydrolized gelatin, urea, sodium chloride, sorbitol, monodium L-glutamate, sodium phosphate, human albumin, sodium bicarbonate, potassium phosphate, potassium chloride, residual components of MRC-5 cells (including DNA and protein), neomycin, bovine serum albumin, other buffer and media ingredients, sodium phosphate dibasic, potassium phosphate monobasic, potassium phosphate dibasic

20. 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	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. / Jan. 2012	soy peptone broth, casamino acids and yeast extract-based medium, ammonium sulfate	polysorbate 80, succinate buffer, aluminum (as aluminum phosphate adjuvant)
Pneumococcal Vaccine, Polyvalent / Pneumovax-23	Merck & Co., Inc. / Oct. 2011	–	isotonic saline solution, phenol

21. 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 / Dec. 2005	Vero cells, Eagle MEM modified medium, newborn calf serum, M-199 (without calf serum)	2-phenoxyethanol, formaldehyde, neomycin, streptomycin, polymyxin B, residual calf serum

22. Rabies Vaccine

PROPER NAME / COMMERCIAL NAME (click for package	MANUFACTURER / PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)

insert)

Rabies Vaccine IMOVAX	Sanofi Pasteur, SA Dec. 2005	MRC-5 cells, beta-propiolactone	human albumin, neomycin sulfate, phenol red indicator, beta-propiolactone
Rabies Vaccine RabAvert	Novartis Vaccines and Diagnostics Oct. 2006	chicken fibroblasts, synthetic cell culture medium, 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, neomycin, chlortracycline, amphotericin B, Water for Injection

23. 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. Sep. 2011	Vero cells, buffered stabilizer, porcine-derived materials	sucrose, sodium citrate, sodium phosphate monobasic monohydrate, sodium hydroxide, polysorbate 80, cell culture media, fetal bovine serum (trace), DNA for porcine circoviruses
Rotavirus Vaccine, Live, Oral Rotarix	GlaxoSmithKline Biologicals Feb. 2011	Vero cells, porcine-derived materials	amino acids, dextran, Dulbecco's Modified Eagle Medium (sodium chloride, potassium chloride, magnesium sulfate, ferric (III) nitrate, sodium phosphate, sodium pyruvate, D-glucose, concentrated vitamin solution, L-cystine, L-tyrosine, amino acids solution, L-glutamine, calcium chloride, sodium hydrogenocarbonate, phenol red), sorbitol, sucrose, calcium carbonate, sterile water, xanthan

24. 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	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

25. 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. Aug. 2007	Vero cells, human serum albumin, sodium chloride, mannitol USP, meomycin, polymyxin B	glycerin USP, phenol USP in Water for Injection USP

26. 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	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, residual formaldehyde
Tetanus and Diphtheria	Sanofi Pasteur,	modified Mueller-Miller casamino acid medium without beef heart infusion,	aluminum phosphate, residual formaldehyde,

Toxoids Adsorbed For Adult Use TENIVAC	Ltd. Dec. 2010	formaldehyde, ammonium sulfate, modified Mueller's growth medium, aluminum phosphate, 2-phenoxyethanol, sodium chloride	2-phenoxyethanol, 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, residual formaldehyde, thimerosal
Tetanus Toxoid –	Sanofi Pasteur, Inc. Dec. 2005	peptone-based medium, formaldehyde, ammonium sulfate, physiological saline solution	thimerosal, formaldehyde
Tetanus Toxoid Absorbed –	Sanofi Pasteur, Inc. July 2005	peptone-based medium (contains extract of bovine muscle tissue), formaldehyde, ammonium sulfate, aluminum potassium sulfate (alum)	thimerosal, physiological saline solution

27. 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. Dec. 2010	Stainer-Scholte medium, casamino acids, 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, residual formaldehyde, residual glutaraldehyde, 2-phenoxyethanol
Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed Boostrix	GlaxoSmithKline Biologicals Jan. 2012	modified Latham medium derived from bovine casein, Fenton medium containing bovine extract, formaldehyde, Stainer-Scholte liquid medium, glutaraldehyde, aluminum hydroxide	aluminum hydroxide, sodium chloride, residual formaldehyde, polysorbate 80 (Tween 80)

28. 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 Dec. 2005	semi-synthetic medium without animal proteins, hexadecyltrimethylammonium bromide	residual polydimethylsoloxane or fatty-acid ester-cased antifoam, isotonic phosphate buffered saline, sodium chloride, disodium phosphate, monosodium phosphate, sterile water for injection
Typhoid Vaccine Live Oral Ty21a Vivotif	Berna Biotech, Ltd. Aug. 2006	yeast extract, casein, dextrose, and galactose, sucrose, ascorbic acid, amino acids, lactose, magnesium stearate	sucrose, ascorbic acid, amino acid mixture, lactose, magnesium stearate

29. Varicella Vaccine (chickenpox)

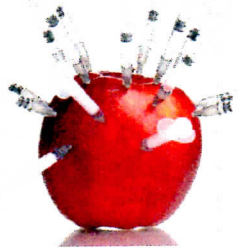
PROPER NAME COMMERCIAL NAME (click for package insert)	MANUFACTURER PACKAGE INSERT DATE	GROWTH MEDIUMS & PROCESS INGREDIENTS	VACCINE INGREDIENTS (not in order of quantity; see package insert for quantities)
Varicella Virus Vaccine, Live Varivax, Frozen and Refigerated	Merck & Co., Inc. Aug. 2011	human 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	sucrose, hydrolyzed gelatin, urea, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, residual components of MRC-5 cells (DNA, protein), neomycin, bovine calf serum, sodium phosphate monobasic, EDTA, fetal bovine serum

30. 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. / Jan. 2010	living avian leukosis virus-free (ALV-free) chicken embryos	sorbitol, gelatin

31. 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	Merck & Co., Inc. / June 2011	–	sucrose, hydrolyzed porcine gelatin, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, residual components of MRC-5 cells (DNA, protein), neomycin, bovine calf serum



II. GLOSSARY AND DETAILS FOR INGREDIENTS

Product	Possible Ingredients*
2-Phenoxyethanol	2-Phenoxyethanol is a glycol either 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-H20, L-gluatamine, gylcine, 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, *p*-aminobenzoic acid, ascorbic acid, *d*-biotin, calcium pantothenate, cholesterol, choline chloride, ethanol, folic acid, glutathione, *i*-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 (a-tocopherol phosphate), D-glucose, phenol red, sodium chloride, potassium chloride, calcium chloride, magnesium culphate 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, pyridocal 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 innoculated 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 grown 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 wth Earle's Balanced Salt Solution), glutamine, non essential amino acids, foetal bovine serum
Mouse Brains	Live mice brains are innoculated 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, Earle's Basal Medium in Earle's balanced salt solution with bovine serum.
Mueller Hinton Agar	beef extract, acid hydroysate of casein, starch, agar
Muller-Miller Medium	glucose, sodium chloride, sodium phosphate dibasic, monopotassium, phosphate, magnesium sulfate hydrate, ferrous sulfate heptaphydrate, 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, asorbic 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

*Ingredients depend on which modification is used.

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