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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying Viruses

Guest	Virus	Studies
Bacteroides fragilis	Not specified	Armon et al. (1998)
Pájaros	Influenza (avian) A/H5N2	Guillard et al. (2008)
E. Coli	Coliphage	Guimarães and Barretto (2003)
E. Coli	fr	Gerrity et al. (2008)
E. Coli	T4	Ditta et al. & Sheel et al. (2008)
E. Coli	λ vir	Yu et al. (2008)
E. Coli	λNM1149	Belhácová et al. (1999)
E. Coli	φX174	Gerrity et al. (2008)
E. Coli	MS2	Sjogren and Sierka (1994), Greist et al. (2002), Cho et al. (2004, 2005)
E. Coli	Qβ	Lee et al. (1997),Otaki et al. (2000)
Humà	Hepatitis B virus surface antigen	HBsAg Zan et al. (2007)
Humà	Influenza A/H1N1	Lin et al. (2006)
Humà	Influenza A/H3N2	Kozlova et al. (2010)
Humà	Norovirus	Kato et al. (2005)
Humà	Poliovirus type 1 (ATCC VFR-192)	Watts et al. (1995)
Humà	SARS coronavirus	Han et al. (2004)
Humà	Vaccinia	Kozlova et al. (2010)
Lactobacillus casei	PL-1	Kakita et al. (1997, 20000, Kashige et al. (2001)
Salmonella typhimurium	PRD1	Gerrity et al. (2008)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying E. Coli strains

Pathogenic Organism	Reference
Escherichia coli WO3	Tatsuma et al. (2003)
Escherichia coli	Vohra et al. (2006)
Escherichia coli ATCC 8739	Cho et al. (2005)
Escherichia coli ATCC 11229	Kuhn et al. (2003)
Escherichia coli ATCC 13706	Rodriguez et al. (2007)
Escherichia coli ATCC 10536	Brook et al. (2007), Dittat al. (2008)
Escherichia coli ATCC 15153	Ibáñez et al. (2003)
Escherichia coli ATCC 23505	Shieh et al. (2006)
Escherichia coli ATCC 23631	Sichel et al. (2007a)
Escherichia coli ATCC 25922	Sökmen et al. (2001)
Escherichia coli ATCC 25922+	Ryu et al. (2008)
Escherichia coli ATCC 27325	Huang et al. (2000) Maness et al. (1999)
Escherichia coli ATCC-39713	Matsunaga et al. (1995)
Escherichia coli CAH57 (ESBL)	Dunlop et al. (2010)
Escherichia coli CCRC 10675	Liu and Yang (2003)
Escherichia coli CECT 101	Kubacka et al. (2008b)
Escherichia coli DH 4α	Lan et al. (2007)
Escherichia coli DH5α	Belhácová et al. (1999) Yu et al. (2002, 2003b)
Escherichia coli HB101	Bekbölet and Araz (1996), Bekbölet (1997)
Escherichia coli HB101	Coleman et al. (2005)
Escherichia coli IFO 3301	Kikuchi et al. (1997) Sunada et al. (2003b)
Escherichia coli IM303	Sato et al. (2003)
Escherichia coli JM109	Yu et al. (2002)
Escherichia coli K12 ATCC10798	Duffy et al. (2004) McLoughlin et al. (2004a, b) Pal et al. (2007)
Escherichia coli K12 ATCC10798	Pal et al. (2008)
Escherichia coli K12 (ATCC 23716)	Rincon and Pulgarin (2003, 2004a)

Escherichia coli K12 (ATCC 2363)	Marugan et al. (2008)
Escherichia coli K12	Fernandez et al. (2005) Gumy et al. (2006a, b) Quisenberry et al. (2009)
Escherichia coli K12	Dunlop et al. (2002)
Escherichia coli MG1655	Gogniat and Dukan (2007)
Escherichia coli MM294	Kim et al. (2004)
Escherichia coli NCIMB-4481	Butterfield et al. (1997)
Escherichia coli PHL1273	Benabbou et al. (2007)
Escherichia coli PHL1273	Guillard et al. (2008)
Escherichia coli S1400/95	Robertson et al. (2005)
Escherichia coli 078	Choi et al. (2004)
Escherichia coli XL1 Blue MRF	Yu et al. (2002)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying gram negative bacteria

Pathogenic Organism	Reference
Acinetobacter	Kashyout et al. (2006)
Acinetobacter baumanii	Cheng et al. (2009)
Aeromonas hydrophila AWWX1	Kersters et al. (1998)
Anabaena	Kim and Lee (2005)
Bacteroides fragilis	Tsuang et al. (2008)
Coliforms	Araña et al. (2002
Coliforms	Watts et al. (1995)
Edwardsiella tarda	Cheng et al. (2008)
Enterobacter aerogenes	Ibáñez et al. (2003)
Enterobacter cloacae SM1	Yao et al. (2007a)
Erwinia carotovora subsp. Carotovora	Muszkat et al. (2005)
Erwinia carotovora subsp. carotovora ZL1, subsp. Carotovora 3, subsp. Carotovora 7	Yao et al. (2007a, b, 2008a, b)
Faecal coliforms	Watts et al. (1995)
Flavobacterium sp.	Cohen-Yaniv et al. (2008)
Fusobacterium nucleatum	Suketa et al. (2005), Bai et al. (2007)
Legionella pneumophila ATCC 33153	Cheng et al. (2007)
Legionella pneumophila CCRC 16084	Li et al. (2003)
Legionella pneumophila GIFU-9888	Dadjour et al. (2005, 2006)
Microcystis	Kim and Lee (2005)
Porphyromonas gingivalis	Chun et al. (2007)
Prevotella intermèdia	Mo et al. (2007)
Proteus vulgaris	Matsunaga et al. (1985)
P. Aeruginosa	Kuhn et al. (2003)
P. aeruginosa environmental isolate	Amezaga-Madrid et al. (2002, 2003)
P. aeruginosa PA01	Gage et al. (2005)
P. Aeruginosa	Luo et al. (2008)

P. Aeruginosa	Yao et al. (2008c)
P. fluorescens R2F	Kersters et al. (1998)
P. fluorescens B22	Skorb et al. (2008)
Pseudomonas sp.	Muraleedharan et al. (2003)
Pseudomonas stutzeri NCIMB11358	Biguzzi and Shama (1994)
Pseudomonas syringae pv tomato	Muszkat et al. (2005)
Pseudomonas tolaasi	Goswami et al. (1999)
Salmonella choleraesuis	Cheng et al. (2009)
Salmonella enteriditis Typhimurium	Kim et al. (2003)
Salmonella enteriditis Typhimurium	Hara-Kudo et al. (2006)
Serratia marcescens	Block et al. (1997), Goswami et al. (1999)
Shigella flexneri	Cheng et al. (2009)
Vibrio parahaemolyticus	Kim et al. (2003)
Vibrio parahaemolyticus VP 144	Hara-Kudo et al. (2006)
Vibrio vulnificus	Song et al. (2008)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying Gram positive bacteria

Pathogenic Organism	Reference
Actinobacillus actinomycetemcomitans	Suketa et al. (2005)
Actinomyces viscosus	Nagame et al. (1989)
Bacillus cereus	Cho et al. (2007a)
Bacillus cereus spores	Armon et al. (2004)
Bacillus megaterium QM B1551)	Fu et al. (2005)
Bacillus pumilis spores ATCC 27142	Pham et al. (1995, 1997)
Bacillus sp.	Rincón and Pulgarin (2005)
Bacillus subtilis vegetative cells and endospores	Rincón and Pulgarin (2005)
Bacillus subtilis endospores	Greist et al. (2002)
Bacillus thuringiensis	Kozlova et al. (2010)
Clavibacter micheganensis	Muszkat et al. (2005)
Clostridium difficile	Dunlop et al. (2010)
Clostridium perfringens spores NCIMB 6125	Butterfield et al. (1997)
Clostridium perfringens spores	Guimarães and Barretto (2003)
Deinococcus radiophilus	Laot et al. (1999)
Enterococcus (Streptococcus) faecalis	Singh et al. (2005)
Enterococcus (Streptococcus) faecalis Immobilised	Vidal et al. (1999)
Enterococcus faecalis	CECT 481
Enterococcus faecium	Kühn et al. (2003)
Enterococcus hirae	Tsuang et al. (2008)
Enterococcus sp.	Rincón and Pulgarin (2005)
Lactobacillus acidophilus	Matsunaga et al. (1985), Choi et al. (2007a)
Lactobacillus helveticus CCRC 13936	Liu and Yang (2003)
Lactococcus lactis 411	Skorb et al. (2008)
Listeria monocytogenes	Kim et al. (2003)
Microbacterium sp. Microbacteriaceae str. W7	Pal et al. (2007)

Micrococcus luteus	Wolfrum et al. (2002)
Micrococcus lylae	Yu et al. (2005b)
MRSA	Chen et al. (2008)
MRSA	Oka et al. (2008)
Mycobacterium smegmatis	Kozlova et al. (2010)
Porphyromonas gingivalis	Shiraishi et al. (1999)
Paenibacillus sp SAFN-007	Pal et al. (2007)
Staphylococcus aureus	Block et al. (1997)
Staphylococcus aureus	Shiraishi et al. (1999)
Staphylococcus epidermidis NCTC11047	Sheel et al. (2008)
Staphylococcus saprophyticus	Chen et al. (2008)
Streptococcus cricetus	Nagame et al. (1989)
Streptococcus iniae	Cheng et al. (2008)
Streptococcus mutans	Chun et al. (2007)
Streptococcus mutans GS5, LM7, OMZ175	Saito et al. (1992)
Streptococcus pyogenes eryr camr	Chen et al. (2008)
Streptococcus rattus FA-1	Saito et al. (1992)
Streptococcus sobrinus AHT	Saito et al. (1992)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying protozoa and algae

Organism	Reference
Protozoos	
Acanthamoeba castellania	Sökmen et al. (2008)
Only 50% kill for cysts, trophozoites were sensitive	
Acanthamoeba polyphaga environmental isolate	Lonnen et al. (2005)
Cryptosporidium parvum	Ryu et al. (2008
Cryptosporidium parvum	Curtis et al. (2002)
Giardia sp. Fibrous	Navalon et al. (2009)
Giardia intestinalis cysts	Sökmen et al. (2008)
Giardia lamblia	Lee et al. (2004)
Tetrahymena pyriformis	Peng et al. (2010)
Algae	
Amphidinium corterae	Rodriguez-Gonzalez et al. (2010)
Chlorella vulgaris	Matsunaga et al. (1985)
Cladophora sp.	Peller et al. (2007)
Chroococcus sp. 27269	Hong et al. (2005)
Melosira sp.	Kim and Lee (2005)
Oedogonium sp.	Linkous et al. (2000)
Tetraselmis suecica	Rodriguez-Gonzalez et al. (2010)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying microbes and toxines

Toxins	Publication
Brevetoxins	Khan et al. (2010)
Cylindrospermopsin	Senogles et al. (2000, 2001)
Lipopolysaccharide endotoxin	Sunada et al. (1998)
Microcystin-LR	Lawton et al. (1999, 2003), Cornish et al. (2000), Feitz and Waite (2003), Choi et al. (2007b)
Microcystins LR	YA and YR Shephard et al. (1998)
Nodularin	Liu et al. (2005)

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Published studies that demonstrate the effectiveness of ACTIVA technology in destroying fungus

Organism	Publication
Aspergillus niger AS3315	Chen et al. (2009)
A. niger spores	Wolfrum et al. (2002)
Aspergillus niger	Erkan et al. (2006)
Candida albicans ATCC 10231	Lonnen et al. (2005)
Candida albicans	Kühn et al. (2003)
Candida famata	Yao et al. (2008c)
Candida vini	Veselá et al. (2008)
Cladobotryum varium	Sawada et al. (2005)
Cladosporium cladospoiroides	Giannantonio et al. (2009)
Diaporthe actinidae	Hur et al. (2005)
Erysiphe cichoracearum	Lu et al. (2006)
Epicoccum nigrum	Giannantonio et al. (2009)
Fungi from spinach	Koide and Nonami (2007)
Fusarium múcor	Giannantonio et al. (2009)
Fusarium solani ATCC 36031	Lonnen et al. (2005)
Fusarium spp. (equisetii, oxypartan, anthophilum, verticilloides, solani)	Sichel et al. (2007b, c)
Hanseula anómala	CCY-138-30
Peronophythora litchii	Lu et al. (2006)
Penicillium citrinum	Lin and Li (2003a, b)
Penicillium expansum	Maneerat and Hayata (2006)
Penicillium oxalicum	Giannantonio et al. (2009)
Pestaotiopsis maculans	Giannantonio et al. (2009)
Saccharomyces cerevisiae	Matsunaga et al. (1985)
Sacchararomyces cerevisiae	Erkan et al. (2006)
Spicellum roseum	Sawada et al. (2005)
Trichoderma asperellum	Giannantonio et al. (2009)
Trichoderma harzianum	Sawada et al. (2005)