

# Supplementary Materials: Advances in Lipid and Metal Nanoparticles for Antimicrobial Peptide Delivery

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**Table S1.** Clinical trials of AMPs and proposed applications.

AMP	Application	Clinical trial			
		Started	Ended	Ongoing	Phase
<b>AB103</b>	Efficacy and safety of AB103 in necrotizing soft tissue infections treatment	December 2015	November 2019	X	Phase 3
<b>AB103</b>	Safety, pharmacokinetics and immunomodulatory effects of AB103 in necrotizing soft tissue infection patients	December 2011	December 2012		Phase 2
<b>C16G2</b>	Safety, microbiology study and tolerability of C16G2 varnish and strip	July 2017	January 2018		Phase 2
<b>C16G2</b>	Safety and microbiology study of C16G2 in multiple oral gel and/or mouth rinse doses	February 2014	August 2014		Phase 2
<b>C16G2</b>	Safety, microbiology study and pharmacokinetics of single or multiple oral C16G2 gel doses	October 2014	July 2015		Phase 2
<b>C16G2</b>	Evaluation of the safety and microbiology of C16G2	July 2015	March 2016		Phase 2
<b>C16G2</b>	Evaluation of the microbiology and safety of C16G2 administration	November 2015	September 2016		Phase 2
<b>C16G2</b>	Evaluation of the safety and microbiology of C16G2 varnish administered in multiple doses to dental subjects	January 2017	March 2017		Phase 2
<b>C16G2</b>	Evaluation of the microbiology, safety and tolerability of C16G2 dental strip application	February	April 2017		Phase 2

2017				
<b>Colistin</b>	Colistin-rifampin combination and colistin monotherapy in extensively drug-resistant <i>Acinetobacter baumannii</i>	October 2016	June 2018	Not applicable
<b>Colistin</b>	Safety and efficacy study of high dose colistin	May 2014	October 2016	Phase 4
<b>Colistin</b>	Combined dry powder tobramycin and nebulized colistin inhalation in cystic fibrosis patients	March 2014	November 2016	Phase 3
<b>Colistin</b>	Aerosolized + intravenous <i>vs.</i> intravenous colistin for ventilator-associated pneumonia due to pandrugs-resistant <i>A. baumannii</i> in neonates	September 2016	October 2017	Phase 3
<b>Colistin</b>	Efficacy and mortality of a loading dose of colistin in critically ill patients	April 2014	December 2018	Phase 4
<b>Colistin</b>	Optimization dose study on pharmacokinetics and pharmacodynamics of colistin in critically ill patients	October 2011	October 2013	Phase 1
<b>Colistin</b>	Colistin pharmacokinetics in continuous renal replacement therapy	November 2013	August 2015	Phase 4
<b>Colistin</b>	Therapy of ventilator-associated tracheobronchitis caused by Gram-negative bacteria with nebulized colistin	December 2015	December 2017	Phase 3
<b>Colistin</b>	Detection of colistin-resistant isolates from patients of intensive care units and oncohaematology wards	July 2019	July 2021	
<b>Colistin</b>	Evaluation of the nephro/neurotoxicity in the anti-infectious therapy with inhalative colistin therapy for patients with ventilator-associated pneumonia	September 2013	December 2015	
<b>Colistin</b>	Efficacy of ascorbic acid for prevention of colistin-associated nephrotoxicity	January 2012	December 2013	Phase 3
<b>Colistin</b>	Trial of colistin <i>vs.</i> meropenem in ventilator-associated pneumonia	May 2012	December 2015	Phase 3

<b>Colistin</b>	Usefulness of monitoring plasma levels of colistin and sodium colistimethate in patients with multidrug-resistant Gram-negative bacilli	January 2012	August 2015	Not applicable
<b>Colistin</b>	Multicenter open-label randomized controlled trial to compare colistin alone <i>vs.</i> colistin + meropenem	March 2013	February 2017	Phase 4
<b>Colistin</b>	Colistin and rifampicin for multidrug-resistant <i>Acinetobacter</i>	November 2008	October 2011	Phase 3
<b>Colistin</b>	Colistin <i>vs.</i> colistin + fosfomycin for multidrug-resistant <i>Acinetobacter baumannii</i> infections	June 2010	May 2012	Phase 3
<b>Colistin</b>	Intravenous colistin for pulmonary exacerbations: improving safety and efficacy	August 2016	July 2021	Phase 4
<b>Colistin</b>	Effect of aerosolised colistin in ventilator associated pneumonia	April 2013	April 2015	Phase 4
<b>Colistin</b>	Intravenous colistin <i>vs.</i> intravenous colistin + nebulized colistin in ventilator-associated pneumonia due to multidrug-resistant <i>Acinetobacter baumannii</i>	April 2008	April 2011	Phase 3
<b>Colistin</b>	Effect of colistin inhalation on ventilator associated pneumonia	January 2016	January 2018	Phase 2/3
<b>Colistin</b>	Colistin + rifampicin in multidrug-resistant <i>P. aeruginosa</i> and <i>A. baumannii</i>	June 2010	August 2012	Phase 3
<b>Colistin</b>	Colistin pharmacokinetics in critically ill patients during extended dialysis	June 2013	May 2016	
<b>Colistin</b>	Renal impairment associated with colistin levels	December 2009	January 2011	
<b>Colistin</b>	Nebulized colistin for hospital-acquired pneumonia	June 2006		Phase 3
<b>Colistin</b>	Effect of different colistin doses on clinical outcome of pediatric cancer patients with Gram-negative bacteria infections	January 2017	June 2019	Phase 4
<b>Colistin</b>	Optimizing dosing of colistin for infections resistant to all other antibiotics	June 2008	August 2015	Not applicable

<b>Colistin</b>	Sino-nasal inhalation of colistin in patients with cystic fibrosis and <i>Pseudomonas aeruginosa</i> colonization	December 2009	April 2012	Phase 2
<b>Colistin</b>	Aerosolized and intravenous colistin in healthy adults	August 2013	May 2017	Phase 1
<b>Colistin</b>	Impact of plasma levels of colistin in patients with carbapenem resistant <i>Acinetobacter baumannii</i> infection	May 2015	April 2018	
<b>Colistin</b>	Efficacy and safety of colistin for therapy of infections caused by extended spectrum- $\beta$ -lactamase-producing <i>K. pneumoniae</i> or <i>E. coli</i>	February 2006	December 2006	Phase 3
<b>Colistin</b>	Nebulized and intravenous colistin in ventilator-associated pneumonia	July 2017	June 2018	Phase 3
<b>Colistin</b>	Incidence of infection after total knee arthroplasty using an erythromycin and colistin loaded cement or a standard cement	September 2007	May 2012	Not applicable
<b>Colistin</b>	Evaluation of pharmacokinetics and pharmacodynamics properties of intravenous colistimethate sodium	September 2013	June 2019	
<b>Colistin</b>	Investigate of the drug-drug interaction between multiple doses of RO7033877 and multiple doses of colistin methanesulfonate sodium	July 2014	March 2015	Phase 1
<b>Colistin</b>	Trial for the treatment of extensively drug-resistant Gram-negative bacilli	October 2012	September 2021	Phase 3
<b>Colistin</b>	Study of plazomicin compared with colistin in patients with infection due to carbapenem-resistant <i>Enterobacteriaceae</i>	September 2014	September 2016	Phase 3
<b>Colistin</b>	Study of colistin methanesulfonate sodium	October 2010	December 2010	Phase 1
<b>Colistin</b>	Eradication of antibiotic-resistant bacteria through antibiotics and fecal bacteriotherapy	February 2016	March 2018	Phase 2
<b>Colistin</b>	Efficacy, safety and tolerability of aztreonam-avibactam + metronidazole <i>vs.</i> meropenem + colistin for Gram-negative bacteria infections	April 2018	September 2021	Phase 3

<b>Colistin</b>	Clinical usefulness of therapeutic drug monitoring of colistin in treated patients	January 2016	December 2017	Not applicable
<b>Colistin</b>	Selective digestive decontamination for eradicating carbapenem-resistant <i>Klebsiella pneumoniae</i> carriage	January 2013		Phase 4
<b>Colistin</b>	Comparison of 2 treatment regimens for eradication of <i>P. aeruginosa</i> infection in children with cystic fibrosis	August 2001	May 2011	Phase 4
<b>Colistin</b>	Microbiologic effect of selective decontamination of the digestive tract with colistin, gentamicin and nystatin			
<b>Colistin</b>	Impact of treatment with colistin on multiresistant <i>Acinetobacter baumannii</i> mortality, sensitive to colistin	January 2010		
<b>Colistin</b>	Population pharmacokinetics study of colistin in patients infected with multiresistant Gram-negative bacteria	May 2009		Phase 1
<b>Colistin</b>	Tracheobronchitis prevention trial	November 2009	May 2013	Not applicable
<b>Colistin</b>	Selective digestive decontamination in carriers of carbapenem-resistant <i>Klebsiella pneumoniae</i>	November 2008	July 2010	Not applicable
<b>Colistin</b>	Simplified selective digestive tract decontamination for the prevention of intensive care unit acquired infections	June 2013	July 2015	Phase 2/3
<b>Colistin</b>	Aztreonam for inhalation solution (AZLI) for the treatment of exacerbations of cystic fibrosis	November 2016	July 2019	Phase 4
<b>Colistin</b>	Assessment of kidney function for drug dosage adjustments in critically ill patients	February 2017	April 2019	Not applicable

<b>Colistin</b>	Study to evaluate the efficacy and safety of intravenous sulbactam-ETX2514 in the treatment of patients with <i>Acinetobacter baumannii</i> infections	April 2019	July 2020	X	Phase 3
<b>Colistin</b>	Antibiotic administration in colorectal cancer surgery decrease in complications and better prognosis	January 2013	March 2017		Phase 4
<b>Colistin</b>	Decolonization in haematological malignancies	January 2017	December 2017		Phase 4
<b>Colistin</b>	Decontamination of the digestive tract in intensive care unit patients	May 2017	December 2021	X	Phase 3
<b>Colistin</b>	Scandinavian cystic fibrosis azithromycin study	May 2008	March 2014		Phase 4
<b>Colistin</b>	Antibiotic combination for infections caused by Gram-negative bacteria	January 2015	December 2015		Phase 2/3
<b>Colistin</b>	Drug monitoring of antibiotics in critical care patients	March 2013	January 2015		
<b>Colistin</b>	Control of intestinal colonization with fecal microbiota transplantation	January 2014	December 2016		Phase 2/3
<b>Colistin</b>	Pharmacokinetics of aerosolized colimycin in cystic fibrosis	October 2011			Phase 1
<b>Colistin</b>	Observational study of patients with drug resistant <i>Acinetobacter baumannii</i>	August 2010	June 2013		
<b>Colistin</b>	Efficacy of intestinal decontamination in patients colonized by carbapenem-resistant <i>Klebsiella pneumoniae</i> and colistin	July 2012	November 2015		
<b>Colistin</b>	7 vs. 14 days antibiotic therapy for ventilator-associated pneumonia	March 2018	May 2020	X	Not applicable
<b>Colistin</b>	Evaluation of the role of oral antibiotics in carbapenem-resistant <i>Klebsiella pneumonia</i>	July 2009	January 2012		Not applicable

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<b>Colistin</b>	Cohort study on carbapenem-resistant <i>Klebsiella pneumonia</i>	June 2018	July 2019	X	
<b>Colistin</b>	Evaluation of inhaled antibiotics on bacterial diversity in cystic fibrosis lungs	April 2014	August 2016		
<b>Colistin</b>	Ecological effects of decolonization in intensive care	December 2013	October 2017		Phase 3
<b>Colistin</b>	Pharmacokinetics of antibiotics in renal replacement therapies patients	April 2018	July 2020	X	
<b>Colistin</b>	<i>Acinetobacter baumannii</i> -related osteomyelitis characterization	May 2017	December 2019	X	
<b>Colistin</b>	Impact of antimicrobials and MIC values on bloodstream infections due to extended-spectrum $\beta$ -lactamase or carbapenemase-producing <i>Enterobacteriaceae</i>	January 2013	May 2014		
<b>Colistin</b>	Clinical outcomes and global epidemiology	July 2007	June 2017		
<b>Colistin</b>	Pharmacokinetics-pharmacodynamics study of 7 anti-infective agents in the cerebro spinal fluid of brain injured patients with an external ventricular drainage	July 2018	October 2020	X	Phase 1
<b>Colistin</b>	Ventilator-associated pneumonia due to <i>Pseudomonas aeruginosa</i>	March 2018	July 2020	X	Phase 3
<b>Colistin</b>	Efficacy of colistimethate sodium inhalation in ventilator-associated pneumonia patients	October 2013	September 2016		
<b>Colistin</b>	Efficacy and safety of colistimethate sodium injection to hospital-acquired pneumonia	October 2013			Phase 2
<b>Colistin</b>	Efficacy and safety of imipenem + cilastatin/relebactam <i>vs.</i> colistimethate sodium + imipenem + cilastatin in imipenem-resistant bacterial infection	August 2015	September 2017		Phase 3
<b>Colistin</b>	Adherence improvement and clinical outcome in cystic fibrosis patients	December 2009	June 2011		Not applicable
<b>Colistin</b>	Decolonization study of <i>Enterobacteriaceae</i> producing $\beta$ -lactamases	June 2009	August 2012		Phase 4

<b>Colistin</b>	Expanded quantitative urinary culture <i>vs.</i> standard culture techniques in clinical care	June 2017	December 2019	X	Not applicable
<b>Colistin</b>	Patient response to early switch to oral in osteomyelitis	April 2014	September 2019	X	Early Phase 1
<b>Colistin</b>	Efficacy, safety, and tolerability of aztreonam-avibactam in serious infection by metallo- $\beta$ -lactamase producing Gram-negative bacteria treatment	April 2020	October 2021	X	Phase 3
<b>Colistin</b>	Treatment of non-cystic fibrosis bronchiectasis patients with chronic lung infections with colistimethate sodium	January 2018	July 2020	X	Phase 3
<b>Colistin</b>	Efficacy and safety of inhaled colistimethate sodium in bronchiectasis subjects with chronic <i>Pseudomonas aeruginosa</i> infection	June 2017	July 2020	X	Phase 3
<b>Colistin</b>	Gram-negative bacteremia in haematopoietic stem cell transplantation recipients	February 2014	April 2017		
<b>Colistin</b>	Cost of off-label antibiotics in osteoarticular infections	January 2017	April 2022	X	
<b>Colistin</b>	Usage of tobramycin inhalation powder <i>vs.</i> nebulised tobramycin inhalation solution and nebulised colistimethate	August 2013	October 2015		Phase 4
<b>Daptomycin</b>	Daptomycin as adjunctive therapy for <i>Staphylococcus aureus</i> bacteremia	November 2016	September 2019	X	Phase 4
<b>Daptomycin</b>	Daptomycin for antimicrobial prophylaxis in MRSA colonized patients undergoing hip, knee or shoulder arthroplasty	October 2010	March 2014		Phase 4
<b>Daptomycin</b>	Safety, efficacy, and pharmacokinetics of daptomycin in pediatric subjects with complicated skin and soft tissue infections and bacteremia	December 2018	May 2021		Phase 2
<b>Daptomycin</b>	Influence of rifampin co-administration on the pharmacokinetics profile of daptomycin	May 2014	July 2016		Early Phase 1
<b>Daptomycin</b>	The pharmacokinetics/pharmacodynamics of high-dose daptomycin in patients with septic	January	June 2016		Not



	shock	2015		applicable
<b>Daptomycin</b>	Daptomycin in pediatric patients with bacterial meningitis	April 2012	June 2018	Phase 1
<b>Daptomycin</b>	Daptomycin with rifampin for treatment of staphylococcal prosthetic joint infection	June 2012	June 2016	Phase 2
<b>Daptomycin</b>	Pharmacokinetics variability of daptomycin during prolonged therapy for bone and joint infections	May 2015	September 2015	
<b>Daptomycin</b>	Vancomycin <i>vs.</i> daptomycin for the treatment of MRSA bacteremia	January 2014	December 2015	Phase 2
<b>Daptomycin</b>	Daptomycin pharmacokinetics in children with renal disease	November 2009	April 2014	Not applicable
<b>Daptomycin</b>	Daptomycin concentration in drainage fluid and blood samples of intensive care unit patients	October 2016	March 2019	
<b>Daptomycin</b>	Daptomycin pharmacokinetics during cardiopulmonary bypass surgery	July 2008	October 2010	Phase 3
<b>Daptomycin</b>	Daptomycin pharmacokinetics in infants	January 2010	December 2011	Phase 1
<b>Daptomycin</b>	Daptomycin > 6 mg/kg/day as salvage therapy in patients with complex bone and joint infection	July 2014	January 2015	
<b>Daptomycin</b>	Cerebrospinal fluid pharmacokinetics of daptomycin	May 2010	May 2011	Not applicable
<b>Daptomycin</b>	Daptomycin in treating neutropenia and fever in cancer patients	December 2006	October 2008	Phase 2
<b>Daptomycin</b>	Pharmacokinetics and safety evaluation of daptomycin in children between 2-6 years old with proven or suspected Gram-positive bacteria infections	June 2008	November 2008	Phase 1

<b>Daptomycin</b>	Efficacy and safety of daptomycin with and without combination therapy in <i>S. aureus</i> infective endocarditis	February 2009	November 2011		Phase 4
<b>Daptomycin</b>	Daptomycin pharmacokinetics in critically ill patients receiving continuous veno-venous hemodialysis	February 2007	April 2009		Phase 4
<b>Daptomycin</b>	Daptomycin as an adjuvant agent in the treatment of enterococcal native valve endocarditis	September 2006	October 2008		Phase 4
<b>Daptomycin</b>	Safety and efficacy of daptomycin for the treatment of complicated skin and skin-structure infections	January 2007			Phase 4
<b>Daptomycin</b>	Pharmacokinetics study of intraperitoneal administration of daptomycin in peritoneal infection	September 2013	December 2017		Not applicable
<b>Daptomycin</b>	Retrospective analysis of nephrotoxicity with daptomycin <i>vs.</i> vancomycin treatments in high risk patients	January 2016	January 2016		
<b>Daptomycin</b>	Safety and efficacy of daptomycin <i>vs.</i> standard in 1-17 year olds with <i>Staphylococcus aureus</i> bacteremia	November 2012	January 2016		Phase 4
<b>Daptomycin</b>	Daptomycin in catheter-related <i>Staphylococcus aureus</i> treatment	May 2006	September 2012		Phase 2
<b>Daptomycin</b>	Application of daptomycin in MRSA infected diabetic foot in comparison to vancomycin treatment	July 2011	December 2013		Phase 3
<b>Daptomycin</b>	Daptomycin <i>vs.</i> vancomycin in nosocomial or healthcare-associated MRSA bacteremia treatment	May 2012	July 2014		Phase 3
<b>Daptomycin</b>	Daptomycin safety and pharmacokinetics in 3-24 months infants with proven/suspected Gram-positive bacteria infections or receiving prophylactic antibiotics	January 2010	March 2012		Phase 1
<b>Daptomycin</b>	Daptomycin <i>vs.</i> vancomycin in participants with skin infections due to MRSA	September 2011	October 2012		Phase 4
<b>Daptomycin</b>	Adjunction of daptomycin for pneumococcal meningitis treatment	June 2018	September 2021	X	Phase 2

<b>Daptomycin</b>	Evaluation of daptomycin given during dialysis and after dialysis	April 2009	July 2009	Phase 1
<b>Daptomycin</b>	Daptomycin as antibiotic prophylaxis of sternal wound infections	November 2008	March 2012	Phase 4
<b>Daptomycin</b>	Daptomycin <i>vs.</i> placebo in patients with neutropenia and fever	April 2011	April 2013	Phase 3
<b>Daptomycin</b>	Pharmacokinetics of daptomycin 10 mg/kg in patients with bacteremia, endocarditis or skin soft tissue infections due to Gram-positive bacteria with renal failure	March 2014		Phase 3
<b>Daptomycin</b>	Safety and efficacy of daptomycin in pediatric participants (1 to 17 years-old) with skin and skin structure infections	July 2008	October 2013	Phase 4
<b>Daptomycin</b>	Catheter-related Gram-positive bacteria bloodstream infections	March 2007		Phase 2
<b>Daptomycin</b>	Safety, efficacy, and pharmacokinetics of higher doses of daptomycin and vancomycin in MRSA bacteremia	September 2008	October 2010	Phase 2
<b>Daptomycin</b>	Daptomycin pharmacokinetics in continuous veno-venous hemodiafiltration	February 2010		Phase 2
<b>Daptomycin</b>	Daptomycin pharmacokinetics in healthy subjects	February 2009	March 2009	Phase 1
<b>Daptomycin</b>	Daptomycin for complicated skin and skin structure infections treatment	May 2012	July 2013	Phase 4
<b>Daptomycin</b>	Daptomycin for severe necrotizing soft-tissue infections treatment	June 2005	May 2008	Not applicable
<b>Daptomycin</b>	Efficacy and safety comparison of daptomycin in elderly patients with complicated skin and skin structure infections	March 2010	March 2011	Phase 3
<b>Daptomycin</b>	Safety evaluation of daptomycin in non-infected adults who are on hemodialysis or continuous ambulatory peritoneal dialysis	August 2007	May 2008	Phase 1
<b>Daptomycin</b>	Efficacy of daptomycin + fosfomycin <i>vs.</i> daptomycin for MRSA bacteremia treatment	December 2013	January 2018	Phase 3
<b>Daptomycin</b>	Daptomycin for renal insufficiency and complicated skin and skin structure infections treatment	January	November	Phase 4

		2005	2006	
<b>Daptomycin</b>	Daptomycin safety and efficacy compared to active comparator in pediatric participants with acute hematogenous osteomyelitis	September 2013	December 2016	Phase 3
<b>Daptomycin</b>	Daptomycin + meropenem <i>vs.</i> ceftazidime in the treatment of nosocomial spontaneous bacterial peritonitis	October 2010	July 2014	Phase 2/3
<b>Daptomycin</b>	Real-world daptomycin use in Chinese intensive care units	June 2018	December 2021	X
<b>Daptomycin</b>	Cubicin comparison with vancomycin in complicated skin and skin structure infections in a home infusion setting treatment	July 2010	November 2011	Phase 4
<b>Daptomycin</b>	Daptomycin for antimicrobial prophylaxis	January 2008	September 2008	Phase 4
<b>Daptomycin</b>	Cubicin for complicated post-surgical wound infections	June 2004	March 2005	Phase 4
<b>Daptomycin</b>	Daptomycin safety and efficacy <i>vs.</i> vancomycin or teicoplanin for complicated skin and skin structure infections treatment	April 2006		Phase 3
<b>Daptomycin</b>	Daptomycin for infective endocarditis or to <i>S. aureus</i> bacteremia treatment	March 2002	February 2005	Phase 3
<b>Daptomycin</b>	Study comparing CUBICIN® (daptomycin for injection) with vancomycin in cellulitis or erysipelas	February 2006	August 2006	Phase 4
<b>Daptomycin</b>	Collection of daptomycin pharmacokinetics samples in patients with renal failure	March 2008	December 2010	
<b>Daptomycin</b>	Daptomycin and cytokines production effects in comparison with vancomycin	July 2012	March 2015	Phase 4
<b>Daptomycin</b>	Daptomycin safety and efficacy for complicated skin and skin structure infections and bacteremia in renal impairment	April 2010	June 2012	Phase 4
<b>Daptomycin</b>	Vancomycin and daptomycin + cefazolin for preoperative vascular surgery prophylaxis	August 2007	August 2010	Phase 4
<b>Daptomycin</b>	Outpatient treatment of Gram-positive bacteria wound infections in diabetic foot comparing	August	August	Phase 4

	daptomycin <i>vs.</i> vancomycin based regimens	2010	2012	
<b>Daptomycin</b>	Comparative study of daptomycin to ceftriaxone in moderate to severe community-acquired acute bacterial pneumonia treatment	October 2000	September 2001	Phase 3
<b>Daptomycin</b>	Single-dose daptomycin in pediatric patients with Gram-positive bacteria infection for which they are receiving standard antibiotics	August 2005	August 2006	Phase 1
<b>Daptomycin</b>	Daptomycin for Gram-positive bacteria infections treatment	December 2002	January 2004	Phase 3
<b>Daptomycin</b>	Efficacy and safety study of brilacidin to treat serious skin infections	February 2014	October 2014	Phase 2
<b>Daptomycin</b>	Clinical evaluation of daptomycin bone penetration	May 2011	November 2015	
<b>Daptomycin</b>	Daptomycin pharmacokinetics in critically ill patients undergoing continuous veno-venous hemodiafiltration	December 2009	March 2010	Phase 2
<b>Daptomycin</b>	Daptomycin in subjects undergoing surgery for osteomyelitis associated with an infected prosthetic caused by Staphylococci	June 2007	June 2010	Phase 2
<b>Daptomycin</b>	Population pharmacokinetics analysis of daptomycin in patients with osteoarticular infections	December 2016	June 2017	
<b>Daptomycin</b>	China registration study in patients with skin infections	September 2008	September 2010	Phase 3
<b>Daptomycin</b>	Retrospective evaluation of safety and efficacy of daptomycin used in patients with serious Gram-positive bacteria infections	February 2011	April 2011	
<b>Daptomycin</b>	Safety and efficacy study of daptomycin in complicated skin and skin structure infections	January 2007	September 2007	Phase 2
<b>Daptomycin</b>	Vancomycin <i>vs.</i> daptomycin for the treatment of MRSA bacteremia due to isolates with high vancomycin MICs	June 2011	January 2012	Phase 4
<b>Daptomycin</b>	Ceftobiprole in the treatment of patients with <i>Staphylococcus aureus</i> bacteremia	June 2018	August	X Phase 3

			2021	
<b>Daptomycin</b>	Study of daptomycin to ceftriaxone in the treatment of moderate to severe community-acquired acute bacterial pneumonia due to <i>S. pneumoniae</i>	July 2001	February 2002	Phase 3
<b>Daptomycin</b>	IL-10 stratifying tool towards antibiotic selection for MRSA	November 2015	January 2018	Phase 4
<b>Daptomycin</b>	Clinical data collection in Chinese patients received CUBICIN treatment for actual usage in clinical practice	January 2011	November 2012	
<b>Daptomycin</b>	Study of MK-3009 in Japanese patients with skin or blood stream infections caused by MRSA	September 2008	February 2010	Phase 3
<b>Daptomycin</b>	Initial treatment for acute bacterial skin infections caused by <i>Staphylococcus aureus</i>	October 2010	March 2012	Phase 2
<b>Daptomycin</b>	Vascular surgical antibiotic prophylaxis study	May 2011	October 2013	Phase 4
<b>Daptomycin</b>	Safety and efficacy of ceftaroline in subjects with <i>Staphylococcus aureus</i> bacteremia or with persistent MRSA bacteremia	January 2013	July 2014	Phase 4
<b>Daptomycin</b>	Telavancin <i>Staphylococcus aureus</i> bacteremia trial	December 2014	April 2018	Phase 3
<b>Daptomycin</b>	Retrospective evaluation of safety and efficacy of daptomycin used in patients with serious Gram-positive bacteria infections	February 2011		
<b>Daptomycin</b>	Concentration of antimicrobials in catheter-lock solutions	May 2012	December 2015	Phase 4
<b>Daptomycin</b>	Antibiotic plasma concentrations during continuous renal replacement therapy with a high adsorption membrane	August 2019	December 2022	X
<b>Daptomycin</b>	Combinational antibiotic therapy for MRSA infection	August 2015	October 2018	Phase 3
<b>Daptomycin</b>	Safety and efficacy of drug-induced nephrotoxicity in high-risk patients prevention	October		Phase 4

		2011			
<b>Daptomycin</b>	Dalbavancin for Gram-positive bacteria osteoarticular infections treatment	January 2018	January 2021	X	Phase 4
<b>Daptomycin</b>	Acute renal failure in surgical intensive care units	July 2006	December 2012		Not applicable
<b>Daptomycin</b>	<i>Staphylococcus aureus</i> bacteremia antibiotic treatment options	December 2013	October 2019	X	Phase 3
<b>Daptomycin</b>	Study of MRSA isolated from infected patients in Brazil	July 2011			
<b>Daptomycin</b>	Efficacy of oral antibiotic therapy compared to intravenous antibiotic therapy for osteomyelitis	March 2014	February 2017		Phase 2
<b>Daptomycin</b>	Off-label antibiotics cost in osteoarticular infections	January 2017	April 2022	X	
<b>Daptomycin</b>	Infection control in high risk patients of developing <i>Clostridium difficile</i> infection, vancomycin-resistant enterococci or multidrug-resistant Gram-negatives	November 2016	December 2020	X	
<b>DPK-060</b>	Clinical safety and efficacy of DPK-060 in acute external otitis patients	November 2011	November 2012		Phase 2
<b>DPK-060</b>	Investigation of the antimicrobial efficacy and safety of DPK-060 topical application	March 2008	April 2009		Phase1/2
<b>Friulimicin B</b>	Friulimicin B human trial	June 2007	September 2007		Phase 1
<b>Friulimicin B</b>	Pharmacokinetics/pharmacodynamics of EA-230 during endotoxemia	February 2015	December 2015		Phase 1
<b>Friulimicin B</b>	Immunomodulation of EA-230 following on-pump coronary artery bypass grafting	June 2016	October 2018		Phase 2
<b>hLF-1</b>	Safety of a single dose of hLF1-11 to autologous haematopoietic stem cell transplant recipients	March 2006	November		Phase

			2006		1/ 2
<b>Isegaran</b>	Isegaran in ventilator-associated pneumonia prevention	September 2003	June 2004		Phase2/ 3
<b>Isegaran</b>	Isegaran hydrochloride in oral mucositis prevention in patients undergoing radiation therapy for head and neck cancer	December 2000			Phase 3
<b>LL-37</b>	Intratumoral injection of LL-37 for melanoma	July 2015	July 2021	X	Phase 1/2
<b>LL-37</b>	Effect of smoking and vitamin D <sub>3</sub> on human cathelicidin peptide LL-37 levels	December 2011	July 2015		
<b>LL-37</b>	Passive smoking and LL-37 in children	November 2016	June 2018		
<b>LL-37</b>	Evaluation of the inhibitory effects of topical ivermectin on markers of Rosacea-specific inflammation	July 2016	August 2019		Phase 1/2
<b>LL-37</b>	High dose preoperative cholecalciferol supplementation and perioperative vitamin D status	January 2013	May 2015		Phase 3
<b>LL-37</b>	Effects of aminocaproic acid on Rosacea-specific inflammation	July 2011	December 2012		Early Phase 1
<b>LL-37</b>	Effect of high-dose vitamin D <sub>3</sub> in smokers and non-smokers with and without HIV	April 2018	June 2020	X	Phase 1
<b>LL-37</b>	Comparison of cathelicidin expression in skin and saliva in atopic dermatitis and psoriasis patients	July 2005	February 2009		
<b>LL-37</b>	Therapeutic induction of endogenous antibiotics	January 2005	January 2009		Phase 2
<b>LL-37</b>	Phenylbutyrate and vitamin D in tuberculosis	December 2010	December 2014		Phase 2
<b>LL-37</b>	Effects of surfactants on the innate immune system	September 2013	December 2015		Not applica



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LL-37	Calcitriol <i>vs.</i> placebo among critically-ill patients with sepsis	February 2013	February 2014		Phase 2
LL-37	Effects of vitamin D supplementation on lung function in cystic fibrosis	October 2008	September 2010		Not applicable
LL-37	Effects of vitamin D and omega-3 lipids on infectious diseases and hCAP18	July 2010	December 2019	X	Not applicable
LL-37	Cholecalciferol supplementation for sepsis in the intensive care unit	January 2014	December 2014		Phase 3
LL-37	Fermented milk on the appearance of common winter infectious diseases	December 2014	June 2015		Phase 2
LL-37	Exploratory pharmacodynamics study of HP802-247 in venous leg ulcers	July 2014	October 2015		Phase 2
LL-37	cAMP (cyclic adenosine monophosphate) levels in the nose	March 2011	December 2012		Not applicable
LL-37	Vitamin D in ventilated intensive care unit patients	July 2011	April 2014		Phase 2
LL-37	Effects of <i>Lactobacillus reuteri</i> and vitamin D <sub>3</sub> in children with atopic dermatitis	February 2015	February 2018		Not applicable
LL-37	Immune reconstitution in HIV disease	September 2012	August 2015		Phase 2
LL-37	Immune reconstitution in tuberculosis disease	September 2012	August 2015		Phase 2

<b>LL-37</b>	Evaluation of rosacea-related inflammatory markers in adult skin when treated with LL-37 <i>vs.</i> placebo	April 2011	August 2012		Phase 4
<b>LL-37</b>	Evaluation of bifidobacterium BB-12® efficacy in the treatment of infantile colic	November 2016	November 2017		Not applicable
<b>LL-37</b>	Safety, tolerability, pharmacokinetics, pharmacodynamics and food effect of single or repeat doses of GSK2793660 in healthy subjects	January 2014	October 2014		Phase 1
<b>LL-37</b>	Effects of Antarctic environment on vitamin D status and health risk biomarkers	October 2016	March 2018		Not applicable
<b>LL-37</b>	Antenatal vitamin D <sub>3</sub> dose-finding and safety study	July 2009	June 2010		Phase 1
<b>LL-37</b>	Etiology of eczema herpeticum	February 2017	June 2020	X	
<b>LL-37</b>	Cellular immunotherapy for septic shock	March 2018	October 2020	X	Phase 2
<b>LL-37</b>	Effects of vitamin D supplementation on aerobic fitness in athletes	October 2014	April 2015		Phase 4
<b>LL-37</b>	Efficacy of vitamin D supplementation to MRSA carriers	December 2014	December 2017		Phase 2
<b>LTX-109</b>	Efficacy and safety of two doses of LTX-109 in impetigo	February 2013	April 2014		Phase 2
<b>LTX-109</b>	Safety, tolerability and efficacy of topical LTX-109 in nasal MRSA/MSSA	May 2010	April 2011		Phase 1/2
<b>LTX-109</b>	Safety, tolerability and efficacy of LTX-109 on uncomplicated Gram-positive bacteria skin infection	September 2010	February 2011		Phase 2
<b>MSI-78</b>	MSI-78 for topical application <i>vs.</i> oral ofloxacin in infected diabetic ulcers treatment	August	July 1996		Phase 3

		1994			
<b>MSI-78</b>	MSI-78 for topical application <i>vs.</i> oral ofloxacin in infected diabetic ulcers treatment	August 1994	July 1996		Phase 3
<b>Nisin</b>	Inhibition effects of probiotics on pathogens associated with ventilator-associated pneumonia	November 2016	January 2018		
<b>Nisin</b>	Functional ingredients: effect in gastrointestinal system	April 2012	December 2012		Not applicable
<b>Omiganan</b>	Twice a day omiganan in facial seborrheic dermatitis patients	October 2018	December 2019	X	Phase 2
<b>Omiganan</b>	Evaluation of long-term safety of a once-daily omiganan topical gel	September 2015	February 2018		Phase 3
<b>Omiganan</b>	Antimicrobial activity of omiganan 1% gel <i>vs.</i> chlorhexidine 2% for topical skin antisepsis in healthy adult subjects	May 2008	June 2008		Phase 3
<b>Omiganan</b>	Pharmacodynamics of omiganan BID in patients with atopic dermatitis	March 2017	December 2017		Phase 2
<b>Omiganan</b>	Pharmacodynamics, safety and efficacy of topical omiganan in patients with external genital warts	July 2016	March 2017		Phase 2
<b>Omiganan</b>	Pharmacodynamics, safety/tolerability and efficacy of topical omiganan in patients with vulvar intraepithelial neoplasia	November 2015	July 2017		Phase 2
<b>Omiganan</b>	Omiganan 1% gel preventing catheter infections/colonization in patients with central venous catheters	August 2005	July 2008		Phase 3
<b>Omiganan</b>	Topical challenge with omiganan and imiquimod in healthy volunteers	February 2017	March 2017		Phase 1
<b>Omiganan</b>	Safety and efficacy evaluation of omiganan topical gel <i>vs.</i> vehicle in female subjects with moderate to severe acne vulgaris	October 2015	August 2016		Phase 2

<b>Omiganan</b>	Pharmacodynamics of omiganan in atopic dermatitis patients	May 2015	November 2015	Phase 2
<b>Omiganan</b>	A twelve week safety and efficacy study in Rosacea	March 2013		Phase 2
<b>Omiganan</b>	Safety and efficacy evaluation of a once-daily topical gel <i>vs.</i> vehicle	October 2015	April 2018	Phase 3
<b>Omiganan</b>	Safety and efficacy evaluation of a once-daily topical gel <i>vs.</i> vehicle	October 2015	September 2017	Phase 3
<b>Omiganan</b>	Safety and efficacy of MBI 226 for central venous catheter-related bloodstream infections prevention	September 2000	July 2003	Phase 3
<b>Omiganan</b>	Safety and efficacy of MBI 226 1.25% and 2.5% topical acne solutions in acne treatment	January 2003	September 2003	Phase 2
<b>Omiganan</b>	Safety and efficacy of MBI 226 1.25% and 5% topical acne solutions in acne treatment	October 2000	September 2001	Phase 2
<b>PAC113</b>	PAC113 mouthrinse in HIV seropositive individuals with oral candidiasis	January 2008	June 2008	Phase 2
<b>Pexiganan</b>	Pexiganan <i>vs.</i> placebo for mild infections of diabetic foot ulcers treatment	June 2014	July 2016	Phase 3
<b>Pexiganan</b>	Pexiganan <i>vs.</i> placebo control for the treatment of mild infections of diabetic foot ulcers	June 2014	August 2016	Phase 3
<b>POL7080</b>	POL7080 pharmacokinetics, safety and efficacy in ventilator-associated <i>Pseudomonas aeruginosa</i> pneumonia patients	October 2013	December 2016	Phase 2
<b>POL7080</b>	POL7080 pharmacokinetics / pharmacodynamics, safety and efficacy in exacerbation of non-cystic fibrosis bronchiectasis patients	December 2013	November 2015	Phase 2
<b>POL7080</b>	POL7080 pharmacokinetics and safety in renal impairment patients	April 2013	July 2015	Phase 1
<b>POL7080</b>	Interaction between amikacin and POL7080	April 2016	December 2016	Phase 1
<b>POL7080</b>	Nosocomial pneumonia suspected or confirmed due to <i>Pseudomonas</i>	October	December	Phase 3

		2018	2021		
<b>POL7080</b>	Suspected or confirmed ventilator-associated pneumonia due to <i>Pseudomonas aeruginosa</i>	March 2018	July 2020		Phase 3
<b>Polymyxin B</b>	Efficacy of polymyxin B against infections caused by extensively drug-resistant Gram-negative bacteria	December 2014	November 2015		Phase 4
<b>Polymyxin B</b>	Polymyxin B monotherapy <i>vs.</i> combination in critically ill patients with multidrug-resistant pathogens	May 2017	December 2019	X	Phase 3
<b>Polymyxin B</b>	Melatonin for renal protection in patients receiving polymyxin B	October 2018	July 2020	X	Phase 2
<b>Polymyxin B</b>	Optimizing clinical use of polymyxin B	February 2016	May 2020	X	
<b>Polymyxin B</b>	Impact of early peri-operative use of polymyxin B hemoperfusion in septic patients undergoing emergent abdominal surgery	January 2012	February 2015		Not applicable
<b>Polymyxin B</b>	The effects of polymyxin B protects on sepsis induced kidney dysfunction: a randomized clinical trial	May 2006	December 2007		Phase 3
<b>Polymyxin B</b>	Safety and efficacy of heparin dosing score protocol for polymyxin B hemoperfusion	May 2017	July 2017		
<b>Polymyxin B</b>	The pilot study of the efficacy of polymyxin B hemoperfusion in critically ill patients with severe sepsis	January 2015	August 2017		Not applicable
<b>Polymyxin B</b>	Efficacy of polymyxin B hemoperfusion on severe sepsis secondary to pneumonia or urinary tract infection	August 2016	March 2019		Not applicable
<b>Polymyxin B</b>	Randomized-controlled trial on combination antibiotic for infections caused by Gram-negative bacteria	January 2015	December 2015		Phase 2/3
<b>Polymyxin B</b>	Effectiveness of polymyxin B sulphate + prednisolone + benzocaine + clioquinol in acute and sub-acute dermatitis eczematous	May 2012	August 2012		Phase 3

<b>Polymyxin B</b>	Polyethyleneimine-coated membrane for hemofiltration <i>vs.</i> polymyxin B-immobilized fibre column in septic shock	August 2013	July 2019		Not applicable
<b>Polymyxin B</b>	Early use of polymyxin B hemoperfusion in abdominal sepsis	December 2004	April 2008		Phase 4
<b>Polymyxin B</b>	Open-label evaluation of polymyxin B hemoperfusion for septic shock				
<b>Polymyxin B</b>	Effects of hemoperfusion with a polymyxin B membrane in peritonitis with septic shock	October 2010	December 2013		Phase 3
<b>Polymyxin B</b>	Safety and efficacy of polymyxin B hemoperfusion for septic shock	June 2010	June 2017		Not applicable
<b>Polymyxin B</b>	Gut decontamination in pediatric allogeneic hematopoietic stem cell transplantation	March 2016	May 2023		Phase 2
<b>Polymyxin B</b>	Antibiotic irrigation for pancreatoduodenectomy	November 2014	August 2024	X	Not applicable
<b>Polymyxin B</b>	Efficacy Maxinom® and Maxitrol® in reducing the signs and symptoms of acute bacterial conjunctivitis	February 2011			Phase 3
<b>Polymyxin B</b>	Comparison of combination antibiotics eyedrop to artificial tear in hordeolum after incision and curettage	September 2007	December 2008		Phase 3
<b>Polymyxin B</b>	Endotoxin adsorber hemoperfusion and microcirculation	December 2012	June 2019		Not applicable
<b>Polymyxin B</b>	Safety and efficacy of polymyxin B hemoperfusion for endotoxemic septic shock	July 2019	December 2021		Not applicable
<b>Polymyxin B</b>	Clearance of nasal <i>Staphylococcus aureus</i> with triple antibiotic ointment	September	November		Not

		2009	2010		applicable
<b>Polymyxin B</b>	Safety evaluation and immunogenicity of monovalent oral polio vaccine type 2 in children aged 1 to 5 years in Lithuania	November 2015	December 2016		Phase 4
<b>Polymyxin B</b>	The combined antibiotic therapy for carbapenem resistant <i>Klebsiella pneumoniae</i>	January 2019	December 2020	X	Early Phase 1
<b>Polymyxin B</b>	Treatment of acyclovir-resistant mucocutaneous <i>Herpes simplex</i> disease in patients with AIDS		April 1992		Not applicable
<b>Polymyxin B</b>	Efficacy of POLYGYNAX® in the empirical treatment of infectious vaginitis	September 2015	August 2016		Phase 3
<b>Polymyxin B</b>	Safety and efficacy study of polymyxin B for congenital nasolacrimal duct obstruction in children treatment	September 2011	June 2014		Phase 1
<b>Polymyxin B</b>	Ear comfort ear drops to treat acute otitis externa cases compared to DexOtic® and Otidin®	July 2011	December 2013		Phase 2
<b>Polymyxin B</b>	Effect of systemic oxygen on corneal epithelial wound healing in diabetic patients undergoing pars plana vitrectomy	October 2013	October 2014		Not applicable
<b>Polymyxin B</b>	The effect of glaucoma drops on the duration of a pure intraocular gas bubble	June 2011	April 2013		Not applicable
<b>Polymyxin B</b>	Efficacy and safety study of CA330 hemoabsorption device on IL-6 removal in septic patients	December 2018	October 2020	X	Not applicable
<b>Polymyxin B</b>	Moxifloxacin <i>vs.</i> Polytrim® for conjunctivitis	March 2007	March 2012		Phase 4
<b>Polymyxin B</b>	Intravitreal carboplatin for the treatment of participants with recurrent or refractory intraocular	November	December	X	Phase 1

	retinoblastoma	2016	2024		
<b>Polymyxin B</b>	Comparison between bandage contact lens and pressure patching for the erosion area and pain scale in corneal erosion patients	September 2012	February 2013		Phase 3
<b>Polymyxin B</b>	Perioperative antibiotic therapy to prevent cardiac implantable electronic device infections	April 2016	August 2020	X	Phase 3
<b>Polymyxin B</b>	Alcohol 20% for separation of pterygium and comparison of different wound closure methods	June 2008	July 2010		Not applicable
<b>Polymyxin B</b>	Frozen <i>vs.</i> fresh corneal carriers for the Boston KPro type I donor carriers	September 2013	January 2020	X	Not applicable
<b>Polymyxin B</b>	Efficacy, safety and tolerability of aztreonam-avibactam in the treatment of serious infection due to metallo- $\beta$ -lactamase-producing Gram-negative bacteria	April 2020	October 2021	X	Phase 3
<b>Polymyxin B</b>	Study of subretinally injected SAR439483 administered in patients with Leber congenital amaurosis caused by biallelic mutations in GUCY2D	July 2019	December 2021	X	Phase 1/2
<b>Polymyxin B</b>	Biafine cream <i>vs.</i> standard care in subjects with actinic keratosis post cryotherapy	October 2006	February 2008		Phase 4
<b>Polymyxin B</b>	Patients response to early switch to oral in osteomyelitis	April 2014	September 2019	X	Early Phase 1
<b>Polymyxin B</b>	Use of ointments in prevention of catheter related infections in peritoneal dialysis	February 2006	June 2010		Phase 4
<b>Polymyxin B</b>	Tacrolimus for malar edema	October 2018	July 2019		Phase2/3
<b>Polymyxin B</b>	Effect of nitroglycerin ointment on mastectomy flap necrosis	August 2012	June 2014		Not applicable



<b>Polymyxin B</b>	Cytoscopic antibiotic irrigant to reduce postoperative urinary tract infection	April 2016	June 2019		Phase 4
<b>Polymyxin B</b>	Two trabecular micro-bypass stents and postoperative travoprost to treat glaucoma subjects on two hypotensive agents	March 2013	April 2019		Phase 4
<b>Polymyxin B</b>	Photo-activated disinfection <i>vs.</i> triple-antibiotic paste for management of necrotic young permanent anterior teeth	October 2016	April 2019		Not applicable
<b>Polymyxin B</b>	Comparison of Mepitel® Ag <i>vs.</i> antibiotic ointment used with soft cast technique for treatment of pediatric burns	September 2016	December 2019	X	Phase 4
<b>Polymyxin B</b>	Tissue characterization in teeth treated with a regeneration protocol	March 2010	March 2014		Early Phase 1
<b>Polymyxin B</b>	Next science wound gel efficacy in chronic wound <i>vs.</i> standard of care	July 2014	September 2016		Not applicable
<b>Polymyxin B</b>	Antibiotic ointments and cream sting after application on a minor wound after tape stripping injury	March 2015	March 2015		Not applicable
<b>Polymyxin B</b>	3Mixstatin, tri-antibiotic mix and simvastatin in the treatment of primary molars	September 2018	January 2020	X	Not applicable
<b>Polymyxin B</b>	Effect of triple antibiotic paste as an intracanal medication with an anti-inflammatory drug on post-operative pain of uniradicular necrotic teeth	October 2016	January 2018		Not applicable
<b>Polymyxin B</b>	Suppression of postprandial monocyte activation by blueberries or docosahexaenoic acid in humans	June 2015	November 2017		Not applicable
<b>Polymyxin B</b>	Triple antibiotic paste, ciprofloxacin/propolis, ciprofloxacin/metronidazole,	January	January		Phase 4

	propolis/metronidazole on revascularization process of necrotic maxillary incisors	2015	2018		
<b>Polymyxin B</b>	Treatment outcome with a revascularization protocol using the triple <i>vs.</i> double antibiotic paste	April 2009	January 2015		Early Phase 1
<b>Polymyxin B</b>	Surgical site infection with 0.05% chlorhexidine compared to triple antibiotic irrigation	December 2015	December 2022	X	Not applicable
<b>Polymyxin B</b>	Regeneration of pulp-dentin development in teeth with necrotic pulps and immature roots	September 2014	December 2019	X	Phase 1
<b>Polymyxin B</b>	Research of the application of triple antibiotic paste in primary teeth with pericpical periodontitis	June 2013	June 2015		Not applicable
<b>PXL01</b>	PXL01 <i>vs.</i> placebo to inhibit adhesion formation after flexor tendon surgery	December 2009	February 2013		Phase 2
<b>PXL01</b>	Local tolerability safety and pharmacokinetics of PXL01 in healthy volunteers	March 2009	April 2009		Phase1
<b>SGX942</b>	SGX942 for oral mucositis treatment in patients with concomitant chemoradiation therapy for head and neck cancer	December 2017	December 2020	X	Phase 3
<b>SGX942</b>	Dose-escalating study of SGX942 for oral mucositis in patients with head and neck cancer	December 2013	September 2016		Phase 2
<b>Surotomycin</b>	Multiple doses of oral surotomycin in healthy participants	July 2009	October 2009		phase 1
<b>Surotomycin</b>	Single doses of oral surotomycin in healthy participants	January 2009	March 2009		Phase 1
<b>Surotomycin</b>	CB-183,315 in participants with <i>Clostridium difficile</i> associated diarrhea	May 2012	March 2015		Phase 3
<b>Surotomycin</b>	CB-183,315 in participants with <i>Clostridium difficile</i> associated diarrhea	May 2012	August 2015		Phase 3