



Bibliography for EcoCRM®, FinaBio's CRM₁₉₇, as of May 31, 2021¹⁻¹⁵

1. Townsend, E. A.; Bremer, P. T.; Jacob, N. T.; Negus, S. S.; Janda, K. D.; Banks, M. L., A synthetic opioid vaccine attenuates fentanyl-vs-food choice in male and female rhesus monkeys. *Drug Alcohol Depend* **2021**, 218, 108348.
2. Lees, A.; Wang, L., Developing a New Carrier Protein for Conjugate Vaccines: Analytical Strategies for Similarity Testing and Formulation Development. *Pharmaceutical Outsourcing* **2021**, 22 (1).
3. Stone, A. E.; Scheuermann, S. E.; Haile, C. N.; Cuny, G. D.; Velasquez, M. L.; Linhuber, J. P.; Duddupudi, A. L.; Vigliaturo, J. R.; Pravetoni, M.; Kosten, T. A.; Kosten, T. R.; Norton, E. B., Fentanyl conjugate vaccine by injected or mucosal delivery with dmLT or LTA1 adjuvants implicates IgA in protection from drug challenge. *NPJ Vaccines* **2021**, 6 (1), 69.
4. Blake, S.; Bremer, P. T.; Zhou, B.; Petrovsky, N.; Smith, L. C.; Hwang, C. S.; Janda, K. D., Developing Translational Vaccines against Heroin and Fentanyl through Investigation of Adjuvants and Stability. *Molecular pharmaceuticals* **2021**, 18 (1), 228-235.
5. Kwong, O. L. e. a. P., Preclinical Development of a Fusion Peptide Conjugate as an HIV Vaccine Immunogen. *Sci Rep, Nature* **2020**, 10 (1), 3032.
6. Scaria, P. V.; Chen, B. B.; Rowe, C. G.; Alani, N.; Muratova, O. V.; Barnafo, E. K.; Lambert, L. E.; Zaidi, I. U.; Lees, A.; Rausch, K. M.; Narum, D. L.; Duffy, P. E., Comparison of carrier proteins to conjugate malaria transmission blocking vaccine antigens, Pfs25 and Pfs230. *Vaccine* **2020**, 38 (34), 5480-5489.
7. Robinson, C.; Gradinati, V.; Hamid, F.; Baehr, C.; Crouse, B.; Averick, S.; Kovaliov, M.; Harris, D.; Runyon, S.; Baruffaldi, F.; LeSage, M.; Comer, S.; Pravetoni, M., Therapeutic and Prophylactic Vaccines to Counteract Fentanyl Use Disorders and Toxicity. *J Med Chem* **2020**, 63 (23), 14647-14667.
8. Oganesyan, N., Lees A Expression and purification of CRM proteins and related proteins, and protein domains. United States Patent 10597664 B2 ·, 2020.
9. Nguyen, D. N.; Xu, B.; Stanfield, R. L.; Bailey, J. K.; Horiya, S.; Temme, J. S.; Leon, D. R.; LaBranche, C. C.; Montefiori, D. C.; Costello, C. E.; Wilson, I. A.; Krauss, I. J., Oligomannose Glycopeptide Conjugates Elicit Antibodies Targeting the Glycan Core Rather than Its Extremities. *ACS central science* **2019**, 5 (2), 237-249.

10. Hassan, W. S.; Giaretta, P. R.; Rech, R.; Ollivault-Shiflett, M.; Esteve-Gasent, M. D., Enhanced protective efficacy of *Borrelia burgdorferi* BB0172 derived-peptide based vaccine to control Lyme disease. *Vaccine* **2019**, 37 (37), 5596-5606.
11. Pravetoni, M.; Comer, S. D., Development of vaccines to treat opioid use disorders and reduce incidence of overdose. *Neuropharmacology* **2019**, 107662.
12. Hickey, J. M.; Toprani, V. M.; Kaur, K.; Mishra, R. P. N.; Goel, A.; Oganessian, N.; Lees, A.; Sitrin, R.; Joshi, S. B.; Volkin, D. B., Analytical Comparability Assessments of Five Recombinant CRM197 Proteins from Different Manufacturers and Expression Systems. *Journal of pharmaceutical sciences* **2018**, 107, 1806.
13. Baruffaldi, F.; Huseby Kelcher, A.; Laudénbach, M.; Gradinati, V.; Limkar, A.; Roslawski, M.; Birnbaum, A.; Lees, A.; Hassler, C.; Runyon, S. P.; Pravetoni, M., Pre-clinical efficacy and characterization of candidate vaccines for treatment of opioid use disorders using clinically viable carrier proteins. *Molecular pharmaceuticals* **2018**, 15, 4947.
14. Baliban, S. M.; Yang, M.; Ramachandran, G.; Curtis, B.; Shridhar, S.; Laufer, R. S.; Wang, J. Y.; Van Druff, J.; Higginson, E. E.; Hegerle, N.; Varney, K. M.; Galen, J. E.; Tennant, S. M.; Lees, A.; MacKerell, A. D., Jr.; Levine, M. M.; Simon, R., Development of a Glycoconjugate Vaccine to Prevent Invasive *Salmonella* Typhimurium Infections in Sub-Saharan Africa. *PLoS neglected tropical diseases* **2017**, 11 (4), e0005493.
15. Bailey, J. K.; Nguyen, D. N.; Horiya, S.; Krauss, I. J., Synthesis of multivalent glycopeptide conjugates that mimic an HIV epitope. *Tetrahedron* **2016**, 72 (40), 6091-6098.

Bibliography

Publications using EcoCRM[®]

(FinaBio's CRM₁₉₇)

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1. Townsend, E. A.; Bremer, P. T.; Jacob, N. T.; Negus, S. S.; Janda, K. D.; Banks, M. L., A synthetic opioid vaccine attenuates fentanyl-vs-food choice in male and female rhesus monkeys. *Drug Alcohol Depend* **2021**, 218, 108348.
2. Lees, A.; Wang, L., Developing a New Carrier Protein for Conjugate Vaccines: Analytical Strategies for Similarity Testing and Formulation Development. *Pharmaceutical Outsourcing* **2021**, 22 (1).

3. Stone, A. E.; Scheuermann, S. E.; Haile, C. N.; Cuny, G. D.; Velasquez, M. L.; Linhuber, J. P.; Duddupudi, A. L.; Vigliaturo, J. R.; Pravetoni, M.; Kosten, T. A.; Kosten, T. R.; Norton, E. B., Fentanyl conjugate vaccine by injected or mucosal delivery with dmLT or LTA1 adjuvants implicates IgA in protection from drug challenge. *NPJ Vaccines* **2021**, 6 (1), 69.
4. Blake, S.; Bremer, P. T.; Zhou, B.; Petrovsky, N.; Smith, L. C.; Hwang, C. S.; Janda, K. D., Developing Translational Vaccines against Heroin and Fentanyl through Investigation of Adjuvants and Stability. *Molecular pharmaceutics* **2021**, 18 (1), 228-235.
5. Kwong, O. L. e. a. P., Preclinical Development of a Fusion Peptide Conjugate as an HIV Vaccine Immunogen. *Sci Rep, Nature* **2020**, 10 (1), 3032.
6. Scaria, P. V.; Chen, B. B.; Rowe, C. G.; Alani, N.; Muratova, O. V.; Barnafo, E. K.; Lambert, L. E.; Zaidi, I. U.; Lees, A.; Rausch, K. M.; Narum, D. L.; Duffy, P. E., Comparison of carrier proteins to conjugate malaria transmission blocking vaccine antigens, Pfs25 and Pfs230. *Vaccine* **2020**, 38 (34), 5480-5489.
7. Robinson, C.; Gradinati, V.; Hamid, F.; Baehr, C.; Crouse, B.; Averick, S.; Kovaliov, M.; Harris, D.; Runyon, S.; Baruffaldi, F.; LeSage, M.; Comer, S.; Pravetoni, M., Therapeutic and Prophylactic Vaccines to Counteract Fentanyl Use Disorders and Toxicity. *J Med Chem* **2020**, 63 (23), 14647-14667.
8. Oganessian, N., Lees A Expression and purification of CRM proteins and related proteins, and protein domains. United States Patent 10597664 B2 -, 2020.
9. Nguyen, D. N.; Xu, B.; Stanfield, R. L.; Bailey, J. K.; Horiya, S.; Temme, J. S.; Leon, D. R.; LaBranche, C. C.; Montefiori, D. C.; Costello, C. E.; Wilson, I. A.; Krauss, I. J., Oligomannose Glycopeptide Conjugates Elicit Antibodies Targeting the Glycan Core Rather than Its Extremities. *ACS central science* **2019**, 5 (2), 237-249.
10. Hassan, W. S.; Giaretta, P. R.; Rech, R.; Ollivault-Shiflett, M.; Esteve-Gasent, M. D., Enhanced protective efficacy of *Borrelia burgdorferi* BB0172 derived-peptide based vaccine to control Lyme disease. *Vaccine* **2019**, 37 (37), 5596-5606.
11. Pravetoni, M.; Comer, S. D., Development of vaccines to treat opioid use disorders and reduce incidence of overdose. *Neuropharmacology* **2019**, 107662.
12. Hickey, J. M.; Toprani, V. M.; Kaur, K.; Mishra, R. P. N.; Goel, A.; Oganessian, N.; Lees, A.; Sitrin, R.; Joshi, S. B.; Volkin, D. B., Analytical Comparability Assessments of Five Recombinant CRM197 Proteins from Different Manufacturers and Expression Systems. *Journal of pharmaceutical sciences* **2018**, 107, 1806.
13. Baruffaldi, F.; Huseby Kelcher, A.; Laudénbach, M.; Gradinati, V.; Limkar, A.; Roslawski, M.; Birnbaum, A.; Lees, A.; Hassler, C.; Runyon, S. P.; Pravetoni, M., Pre-clinical efficacy and

characterization of candidate vaccines for treatment of opioid use disorders using clinically viable carrier proteins. *Molecular pharmaceutics* **2018**, *15*, 4947.

14. Baliban, S. M.; Yang, M.; Ramachandran, G.; Curtis, B.; Shridhar, S.; Laufer, R. S.; Wang, J. Y.; Van Druff, J.; Higginson, E. E.; Hegerle, N.; Varney, K. M.; Galen, J. E.; Tennant, S. M.; Lees, A.; MacKerell, A. D., Jr.; Levine, M. M.; Simon, R., Development of a Glycoconjugate Vaccine to Prevent Invasive Salmonella Typhimurium Infections in Sub-Saharan Africa. *PLoS neglected tropical diseases* **2017**, *11* (4), e0005493.

15. Bailey, J. K.; Nguyen, D. N.; Horiya, S.; Krauss, I. J., Synthesis of multivalent glycopeptide conjugates that mimic an HIV epitope. *Tetrahedron* **2016**, *72* (40), 6091-6098.