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1-16. (canceled)

17. A synthetic peptide with bioactivity against *Staphylococcus aureus* (SA) satisfying at least four terms of the mathematical equation: SA predicted bioactivity=[(−1.4959×"Fcharge")+(0.0098×"dipole-mag")+(0.0140×"Jurs-SASA")+(0.0023×"Jurs-PPSA-1")+(0.1876×"Jurs-PNSA-1")+(0.0022×"Jurs-PNSA-2")+(0.00037×"Jurs-DPSA-2")+(0.0015×"Jurs-DPSA-3")+(438.251×"Jurs-FPSA-1")+(267.258×"Jurs-FPSA-3")+(120.432×"Jurs-FNSA-3")−(715.316×"Jurs-RPCG")−(12.8649×"Jurs-RPCS")−(0.0658×"Jurs-TASA")−(125.513×"Jurs-RPSA")+(125.513×"Jurs-RASA")−(183.99×"density")+(1.0340×"Hbond acceptor")+(0.0395×"Hbond donor")−(0.3069×"Rotlbonds")+(0.1148×"A log P")−(0.10004×"RadOfGyration")−225.589].

18. The synthetic peptide with bioactivity against *Staphylococcus aureus* (SA) according to claim **17**, satisfying the mathematical equation: SA predicted bioactivity=[(−1.49592×"Fcharge")+(0.0098147×"dipole-mag")+(0.013993×"Jurs-SASA")+(0.00233×"Jurs-PPSA-1")+(0.187647×"Jurs-PNSA-1")+(0.0021686×"Jurs-PNSA-2")+(0.00036919×"Jurs-DPSA-2")+(0.0015025×"Jurs-DPSA-3")+(438.251×"Jurs-FPSA-1")+(267.258×"Jurs-FPSA-3")+(120.432×"Jurs-FNSA-3")−(715.316×"Jurs-RPCG")−12.8649×"Jurs-RPCS")−(0.065752×"Jurs-TASA")−(125.513×"Jurs-RPSA")+(125.513×"Jurs-RASA")−(183.99×"density")+(1.03397×"Hbond acceptor")+(0.039473×"Hbond donor")−(0.306856×"Rotlbonds")+(0.114808×"A log P")−(0.10004×"RadOfGyration")−225.589.

19. The synthetic peptide with bioactivity against *Staphylococcus aureus* (SA) according to claim **17**, having at least four of the following physicochemical properties, wherein the respective percentages of each property indicate the relative contribution toward the bioactivity: Jurs-FPSA-1—29.347%; density—16.010%; Jurs-TASA—14.762%; Jurs-PNSA-1—10.540%; Jurs-RASA—7.886%; Jurs-SASA—4.120%; Jurs-DPSA-2—3.093%; Jurs-PNSA-2—2.911%; Jurs-RPSA—2.492%; Rotlbonds—2.164%; Hbond acceptor—1.910%; Jurs-FPSA-3—1.709%; Fcharge—0.742%; Jurs-RPCG—0.726%; Jurs-PPSA-1—0.555%; Jurs-FNSA-3—0.426%; Dipole-mag—0.162%; RadOfGyration—0.127%; Jurs-RPCS−0.126%; Hbond donor—0.113%; Jurs-DPSA-3—0.053%; and A log P—0.026%.

20. A synthetic peptide with bioactivity against *Mycobacterium* ranae (MR) satisfying at least four terms of the mathematical equation: MR predicted activity=[(−0.0084×"conformer energy")+(2.0576×"Fcharge")+(0.00005×"Apol")+(0.0061×"dipole-mag")−(0.0239×"Jurs-PPSA-1")−(0.0083×"Jurs-PNSA-1")+(0.00005×"Jurs-PPSA-2")+(0.00019×"Jurs-PNSA-2")−(18.282×"Jurs-FPSA-1")+(13.321*"Jurs-FNSA-3")−(8.4684×"Jurs-RPCG")+(66.6262×"Jurs-RNCG")+(0.0529×"Jurs-TPSA")−(96.9761×"Jurs-RPSA")+(96.9761×"Jurs-RASA")−(127.577×"density")+(0.7687×"Hbond acceptor")−(0.4983×"Hbond donor")−(0.0608×"Rotlbonds")−(0.0758×"A log P")+(0.3378×"RadOfGyration")+110.841].

21. A synthetic peptide with bioactivity against *Mycobacterium* ranae (MR) according to claim **20**, satisfying the mathematical equation: MR predicted activity=[(−0.0083585×"conformer energy")+(2.05758×"Fcharge")+(5.3259e-05×"Apol")+(0.0061422×"dipole-mag")−(0.023941×"Jurs-PPSA-1")−(0.008252×"Jurs-PNSA-1")+(5.5381e-05×"Jurs-PPSA-2")+(0.00018566×"Jurs-PNSA-2")−(18.282×"Jurs-FPSA-1")+(13.321*"Jurs-FNSA-3")−(8.46841×"Jurs-RPCG")+(66.6262×"Jurs-RNCG")+(0.052889×"Jurs-TPSA")−(96.9761×"Jurs-RPSA")+(96.9761×"Jurs-RASA")−(127.577×"density")+(0.768698×"Hbond acceptor")−(0.498282×"Hbond donor")−(0.060764×"Rotlbonds")−(0.075759×"A log P")+(0.337835×"RadOfGyration")+110.841].

22. A synthetic peptide with bioactivity against *Mycobacterium* ranae (MR) according to claim **20**, having at least four of the following physicochemical properties, wherein the respective percentages of each property indicate the relative contribution toward the bioactivity: Density—30.784%;