

2018



Catalogue of Penicillin Drug Impurity Standard Products
Guangzhou PI & PI Biotech Inc. Ltd.



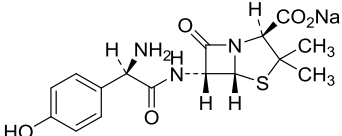
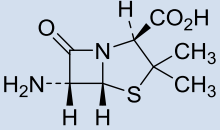
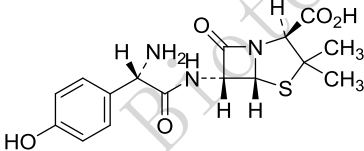
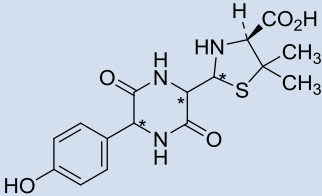
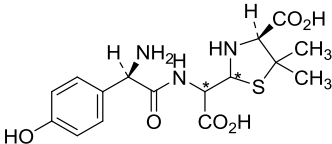
Guangzhou

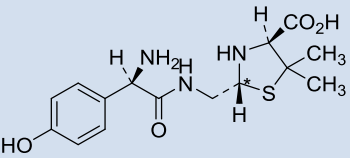
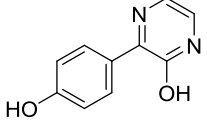
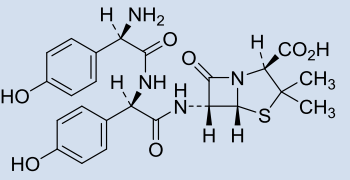
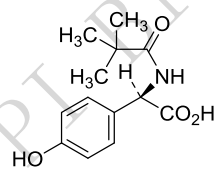
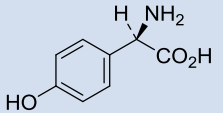
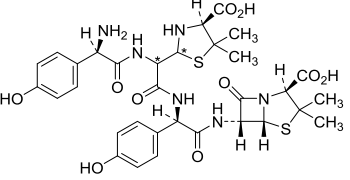
Charles Zhang
Guangzhou PI&PI Biotech INC.
2018/4/16

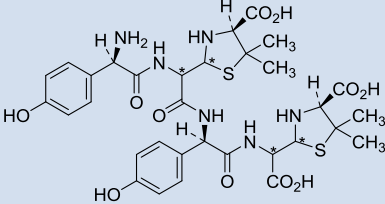
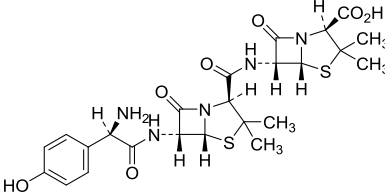
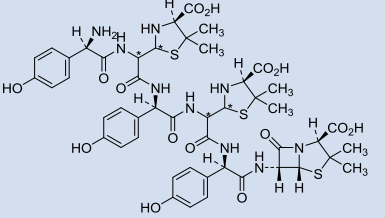
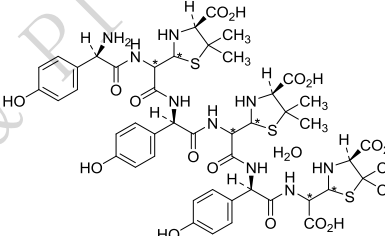
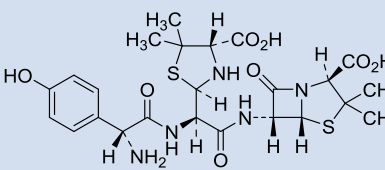
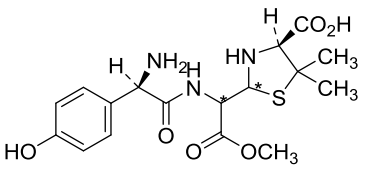
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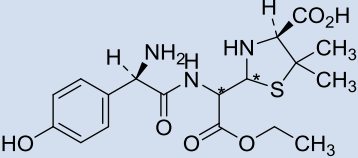
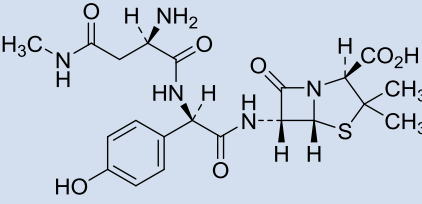
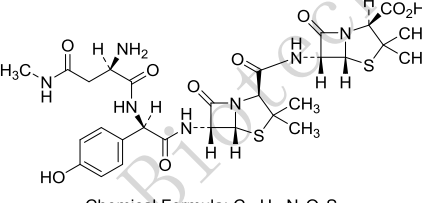
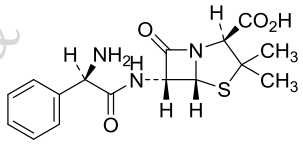
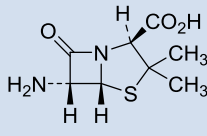
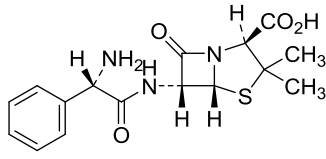
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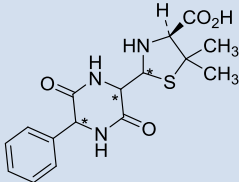
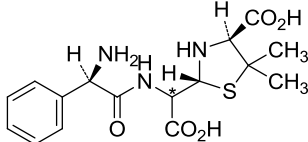
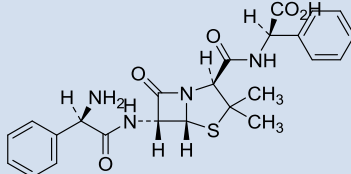
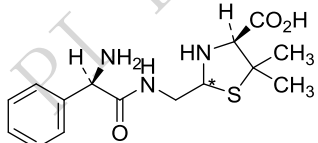
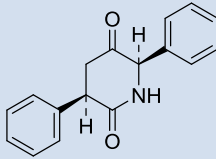
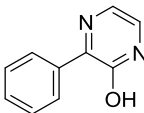
Guangzhou PI & PI Biotech Inc. Ltd.

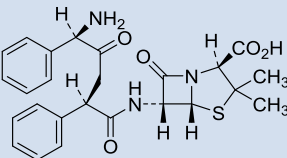
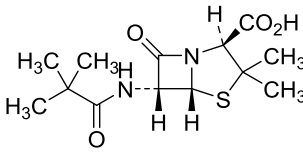
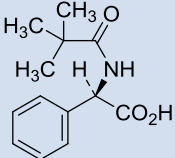
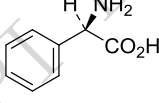
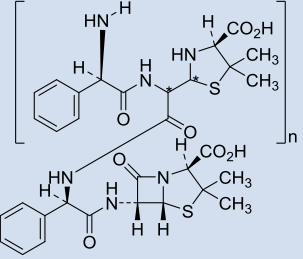
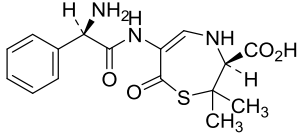
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	Imp C (EP)	 Chemical Formula: $C_{16}H_{19}N_3O_5S$ Exact Mass: 365.10454 Molecular Weight: 365.40400	Chemical Formula: $C_{16}H_{19}N_3O_5S$ Exact Mass: 365.10454 Molecular Weight: 365.40400
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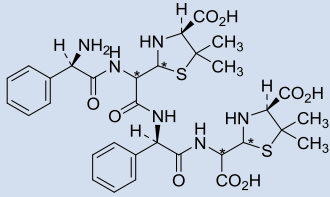
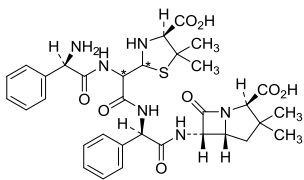
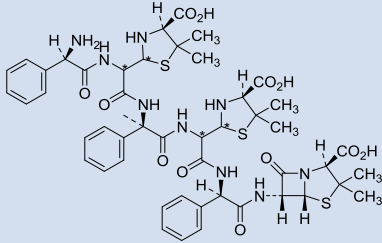
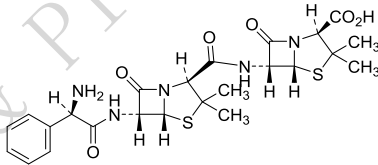
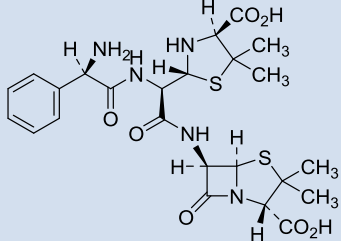
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Imp H (EP)  Chemical Formula: $C_{13}H_{17}NO_4$ Exact Mass: 251.11576 Molecular Weight: 251.28200	Chemical Formula: C13H17NO4 Exact Mass: 251.11576 Molecular Weight: 251.28200
Imp I (EP)  Chemical Formula: $C_8H_9NO_3$ Exact Mass: 167.05824 Molecular Weight: 167.16400	Chemical Formula: C8H9NO3 Exact Mass: 167.05824 Molecular Weight: 167.16400
Imp J (EP)  Chemical Formula: $C_{32}H_{38}N_6O_{10}S_2$ Exact Mass: 730.20908 Molecular Weight: 730.80800	Chemical Formula: C32H38N6O10S2 Exact Mass: 730.20908 Molecular Weight: 730.80800

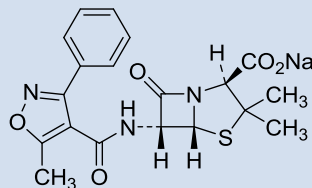
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Imp N (EP)  Chemical Formula: $C_{48}H_{59}N_9O_{16}S_3$ Exact Mass: 1113.32419 Molecular Weight: 1114.22700	Chemical Formula: $C_{48}H_{59}N_9O_{16}S_3$ Exact Mass: 1113.32419 Molecular Weight: 1114.22700
Imp O (EP)  Chemical Formula: $C_{24}H_{31}N_5O_8S_2$ Exact Mass: 581.16140 Molecular Weight: 581.65900	Chemical Formula: $C_{24}H_{31}N_5O_8S_2$ Exact Mass: 581.16140 Molecular Weight: 581.65900
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Imp U (EP)	 Chemical Formula: $C_{18}H_{25}N_3O_6S$ Exact Mass: 411.14641 Molecular Weight: 411.47300	Chemical Formula: $C_{18}H_{25}N_3O_6S$ Exact Mass: 411.14641 Molecular Weight: 411.47300
Aspicillin	 Chemical Formula: $C_{21}H_{27}N_5O_7S$ Exact Mass: 493.16312 Molecular Weight: 493.53500	Chemical Formula: $C_{21}H_{27}N_5O_7S$ Exact Mass: 493.16312 Molecular Weight: 493.53500
Aspicillin Double Parents	 Chemical Formula: $C_{29}H_{37}N_7O_9S_2$ Exact Mass: 691.20942 Molecular Weight: 691.77500	Chemical Formula: $C_{29}H_{37}N_7O_9S_2$ Exact Mass: 691.20942 Molecular Weight: 691.77500
Ampicillin	 Chemical Formula: $C_{16}H_{19}N_3O_4S$ Exact Mass: 349.10963 Molecular Weight: 349.40500	Chemical Formula: $C_{16}H_{19}N_3O_4S$ Exact Mass: 349.10963 Molecular Weight: 349.40500
Imp A (EP)	 Chemical Formula: $C_8H_{12}N_2O_3S$ Exact Mass: 216.05686 Molecular Weight: 216.25500	Chemical Formula: $C_8H_{12}N_2O_3S$ Exact Mass: 216.05686 Molecular Weight: 216.25500
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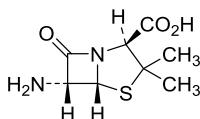
Imp C (EP)  Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500	Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500
Imp D (EP)  Chemical Formula: C₁₆H₂₁N₃O₅S Exact Mass: 367.12019 Molecular Weight: 367.42004	Chemical Formula: C₁₆H₂₁N₃O₅S Exact Mass: 367.12019 Molecular Weight: 367.42004
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Imp F (EP)  Chemical Formula: C₁₅H₂₁N₃O₃S Exact Mass: 323.13036 Molecular Weight: 323.41100	Chemical Formula: C₁₅H₂₁N₃O₃S Exact Mass: 323.13036 Molecular Weight: 323.41100
Imp G (EP)  Chemical Formula: C₁₇H₁₅NO₂ Exact Mass: 265.11028 Molecular Weight: 265.31200	Chemical Formula: C₁₇H₁₅NO₂ Exact Mass: 265.11028 Molecular Weight: 265.31200
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Imp K (EP)	 Chemical Formula: C₁₃H₁₇NO₃ Exact Mass: 235.12084 Molecular Weight: 235.28300	Chemical Formula: C₁₃H₁₇NO₃ Exact Mass: 235.12084 Molecular Weight: 235.28300
Imp L (EP)	 Chemical Formula: C₈H₉NO₂ Exact Mass: 151.06333 Molecular Weight: 151.16500	Chemical Formula: C₈H₉NO₂ Exact Mass: 151.06333 Molecular Weight: 151.16500
Imp M (EP)	 Chemical Formula: C₃₂H₃₈N₆O₈S₂ Exact Mass: 698.21925 Molecular Weight: 698.81000	Chemical Formula: C₃₂H₃₈N₆O₈S₂ Exact Mass: 698.21925 Molecular Weight: 698.81000
Imp N (EP)	 Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500	Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500

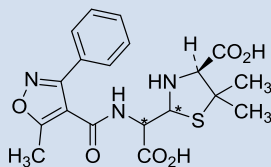
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Imp P (EP)  Chemical Formula: $C_{33}H_{40}N_6O_8S$ Exact Mass: 680.26283 Molecular Weight: 680.77700	Chemical Formula: C33H40N6O8S Exact Mass: 680.26283 Molecular Weight: 680.77700
Imp Q (EP)  Chemical Formula: $C_{49}H_{59}N_9O_{12}S_3$ Exact Mass: 1061.34453 Molecular Weight: 1062.24200	Chemical Formula: C49H59N9O12S3 Exact Mass: 1061.34453 Molecular Weight: 1062.24200
Imp R (EP)  Chemical Formula: $C_{24}H_{29}N_5O_6S_2$ Exact Mass: 547.15593 Molecular Weight: 547.64500	Chemical Formula: C24H29N5O6S2 Exact Mass: 547.15593 Molecular Weight: 547.64500
Imp S (EP)  Chemical Formula: $C_{24}H_{31}N_5O_7S_2$ Exact Mass: 565.16649 Molecular Weight: 565.66000	Chemical Formula: C24H31N5O7S2 Exact Mass: 565.16649 Molecular Weight: 565.66000

Oxacillin sodium

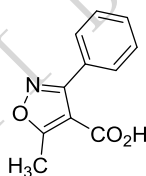
Chemical Formula: $C_{19}H_{18}N_3NaO_5S$
 Exact Mass: 423.08649
 Molecular Weight: 423.41877

Chemical Formula: **$C_{19}H_{18}N_3NaO_5S$** **Exact Mass:****423.08649****Molecular Weight:****423.41877****Imp A (EP)**

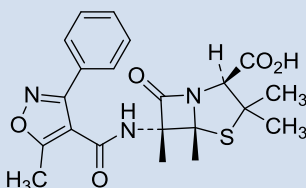
Chemical Formula: $C_8H_{12}N_2O_3S$
 Exact Mass: 216.05686
 Molecular Weight: 216.25500

Chemical Formula: **$C_8H_{12}N_2O_3S$** **Exact Mass:****216.05686****Molecular Weight:****216.25500****Imp B (EP)**

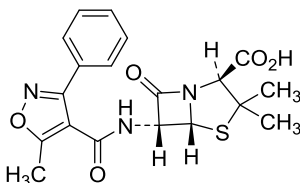
Chemical Formula: $C_{19}H_{21}N_3O_6S$
 Exact Mass: 419.11511
 Molecular Weight: 419.45200

Chemical Formula: **$C_{19}H_{21}N_3O_6S$** **Exact Mass:****419.11511****Molecular Weight:****419.45200****Imp C (EP)**

Chemical Formula: $C_{11}H_9NO_3$
 Exact Mass: 203.05824
 Molecular Weight: 203.19700

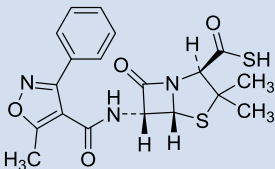
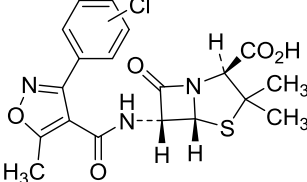
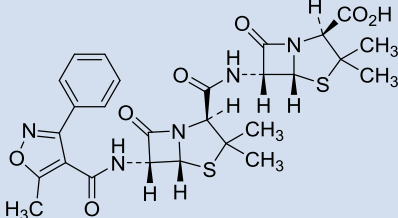
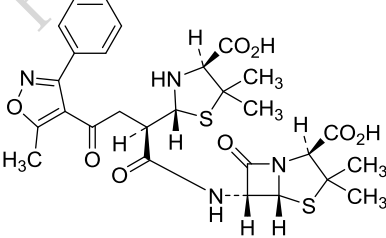
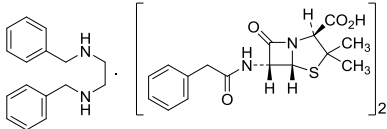
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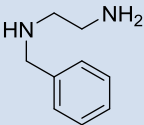
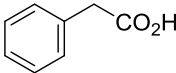
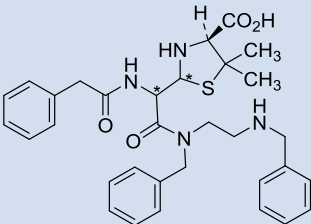
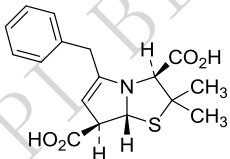
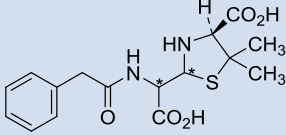
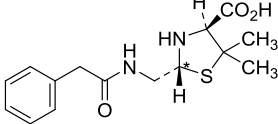
Chemical Formula: $C_{21}H_{23}N_3O_5S$
 Exact Mass: 429.13584
 Molecular Weight: 429.49100

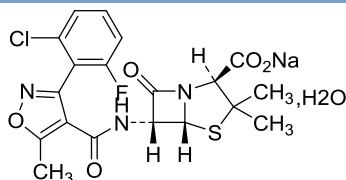
Chemical Formula: **$C_{21}H_{23}N_3O_5S$** **Exact Mass:****429.13584****Molecular Weight:****429.49100****Imp E (EP)**

Chemical Formula: $C_{19}H_{19}N_3O_5S$
 Exact Mass: 401.10454
 Molecular Weight: 401.43700

Chemical Formula: **$C_{19}H_{19}N_3O_5S$** **Exact Mass:****401.10454****Molecular Weight:****401.43700**

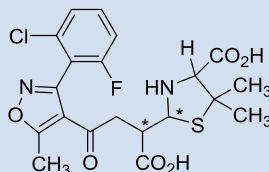
Imp F (EP)	 Chemical Formula: $C_{19}H_{19}N_3O_4S_2$ Exact Mass: 417.08170 Molecular Weight: 417.49800	Chemical Formula: $C_{19}H_{19}N_3O_4S_2$ Exact Mass: 417.08170 Molecular Weight: 417.49800
Imp G (EP)	 Chemical Formula: $C_{20}H_{22}ClN_3O_5S$ Exact Mass: 451.09687 Molecular Weight: 451.92200	Chemical Formula: $C_{20}H_{22}ClN_3O_5S$ Exact Mass: 451.09687 Molecular Weight: 451.92200
Imp I (EP)	 Chemical Formula: $C_{27}H_{29}N_5O_7S_2$ Exact Mass: 599.15084 Molecular Weight: 599.67700	Chemical Formula: $C_{27}H_{29}N_5O_7S_2$ Exact Mass: 599.15084 Molecular Weight: 599.67700
Imp J (EP)	 Chemical Formula: $C_{28}H_{32}N_4O_8S_2$ Exact Mass: 616.16616 Molecular Weight: 616.70400	Chemical Formula: $C_{28}H_{32}N_4O_8S_2$ Exact Mass: 616.16616 Molecular Weight: 616.70400
Benzathine benzylpenicillin	 Chemical Formula: $C_{48}H_{56}N_6O_8S_2$ Exact Mass: 909.26138 Molecular Weight: 909.74000	Chemical Formula: $C_{48}H_{56}N_6O_8S_2$ Exact Mass: 909.26138 Molecular Weight: 909.74000

Imp A (EP)  Chemical Formula: C ₉ H ₁₄ N ₂ Exact Mass: 150.11570 Molecular Weight: 150.22500	Chemical Formula: C₉H₁₄N₂ Exact Mass: 150.11570 Molecular Weight: 150.22500
Imp B (EP)  Chemical Formula: C ₈ H ₈ O ₂ Exact Mass: 136.05243 Molecular Weight: 136.15000	Chemical Formula: C₈H₈O₂ Exact Mass: 136.05243 Molecular Weight: 136.15000
Imp C (EP)  Chemical Formula: C ₃₂ H ₃₈ N ₄ O ₄ S Exact Mass: 574.26138 Molecular Weight: 574.74000	Chemical Formula: C₃₂H₃₈N₄O₄S Exact Mass: 574.26138 Molecular Weight: 574.74000
Imp D (EP)  Chemical Formula: C ₁₇ H ₁₉ NO ₄ S Exact Mass: 333.10348 Molecular Weight: 333.40200	Chemical Formula: C₁₇H₁₉NO₄S Exact Mass: 333.10348 Molecular Weight: 333.40200
Imp E (EP)  Chemical Formula: C ₁₆ H ₂₀ N ₂ O ₅ S Exact Mass: 352.10929 Molecular Weight: 352.40500	Chemical Formula: C₁₆H₂₀N₂O₅S Exact Mass: 352.10929 Molecular Weight: 352.40500
Imp F (EP)  Chemical Formula: C ₁₅ H ₂₀ N ₂ O ₃ S Exact Mass: 308.11946 Molecular Weight: 308.39600	Chemical Formula: C₁₅H₂₀N₂O₃S Exact Mass: 308.11946 Molecular Weight: 308.39600

Flucloxacillin

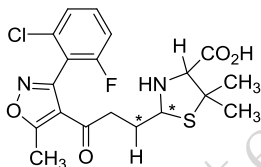
Chemical Formula: $C_{19}H_{16}ClFN_3NaO_5S$
 Exact Mass: 475.03809
 Molecular Weight: 475.85117

Chemical Formula:
 $C_{19}H_{16}ClFN_3NaO_5S$
Exact Mass:
475.03809
Molecular Weight:
475.85117

Imp A (EP)

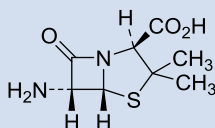
Chemical Formula: $C_{20}H_{20}ClFN_2O_6S$
 Exact Mass: 470.07146
 Molecular Weight: 470.89640

Chemical Formula:
 $C_{20}H_{20}ClFN_2O_6S$
Exact Mass:
470.07146
Molecular Weight:
470.89640

Imp B (EP)

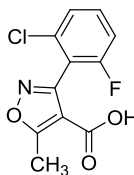
Chemical Formula: $C_{19}H_{20}ClFN_2O_4S$
 Exact Mass: 426.08163
 Molecular Weight: 426.88740

Chemical Formula:
 $C_{19}H_{20}ClFN_2O_4S$
Exact Mass:
426.08163
Molecular Weight:
426.88740

Imp C (EP)

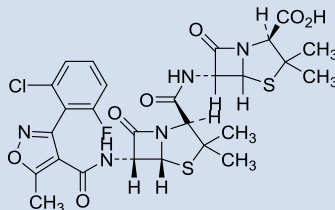
Chemical Formula: $C_8H_{12}N_2O_3S$
 Exact Mass: 216.05686
 Molecular Weight: 216.25500

Chemical Formula:
 $C_8H_{12}N_2O_3S$
Exact Mass:
216.05686
Molecular Weight:
216.25500

Imp D (EP)

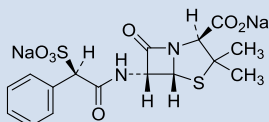
Chemical Formula: $C_{11}H_7ClFNO_3$
 Exact Mass: 255.00985
 Molecular Weight: 255.62940

Chemical Formula:
 $C_{11}H_7ClFNO_3$
Exact Mass:
255.00985
Molecular Weight:
255.62940

Imp E (EP)

Chemical Formula: $C_{27}H_{27}ClFN_5O_7S_2$
 Exact Mass: 651.10245
 Molecular Weight: 652.10940

Chemical Formula:
 $C_{27}H_{27}ClFN_5O_7S_2$
Exact Mass:
651.10245
Molecular Weight:
652.10940

Sulbenicillin

Chemical Formula: $C_{16}H_{16}N_2Na_2O_7S_2$
 Exact Mass: 458.01943
 Molecular Weight: 458.41054

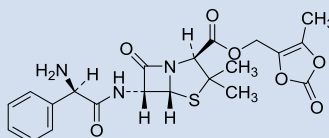
Chemical Formula:
 $C_{16}H_{16}N_2Na_2O_7S_2$

Exact Mass:

458.01943

Molecular Weight:

458.41054

Lenampicillin

Chemical Formula: $C_{21}H_{23}N_3O_7S$
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 Molecular Weight: 461.48900

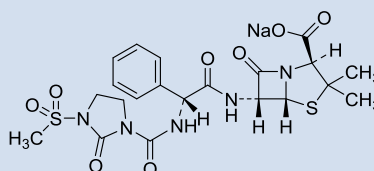
Chemical Formula:
 $C_{21}H_{23}N_3O_7S$

Exact Mass:

461.12567

Molecular Weight:

461.48900

Mezlocillin

Chemical Formula: $C_{21}H_{24}N_5NaO_8S_2$
 Exact Mass: 561.09640
 Molecular Weight: 561.55977

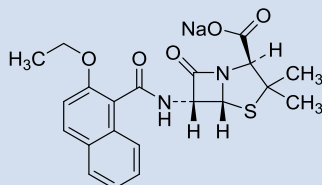
Chemical Formula:
 $C_{21}H_{24}N_5NaO_8S_2$

Exact Mass:

561.09640

Molecular Weight:

561.55977

Nafcillin sodium

Chemical Formula: $C_{21}H_{21}N_2NaO_5S$
 Exact Mass: 436.10689
 Molecular Weight: 436.45777

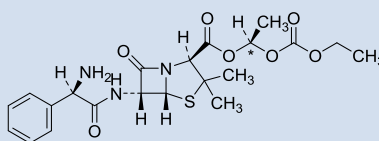
Chemical Formula:
 $C_{21}H_{21}N_2NaO_5S$

Exact Mass:

436.10689

Molecular Weight:

436.45777

Piperacillin

Chemical Formula: $C_{21}H_{27}N_3O_7S$
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 Molecular Weight: 465.52100

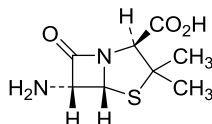
Chemical Formula:
 $C_{21}H_{27}N_3O_7S$

Exact Mass:

465.15697

Molecular Weight:

465.52100

Imp A (EP)

Chemical Formula: $C_8H_{12}N_2O_3S$
 Exact Mass: 216.05686
 Molecular Weight: 216.25500

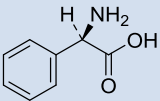
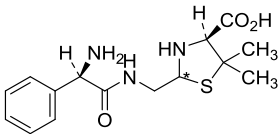
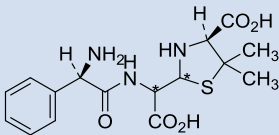
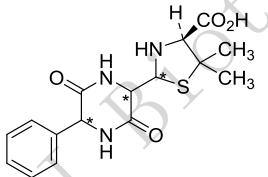
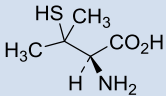
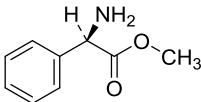
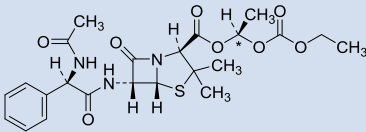
Chemical Formula:
 $C_8H_{12}N_2O_3S$

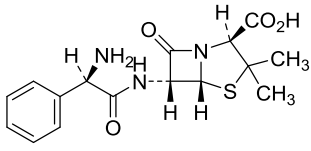
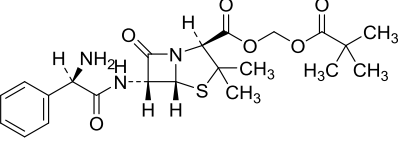
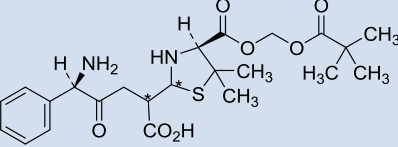
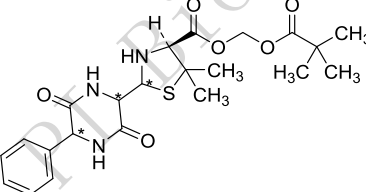
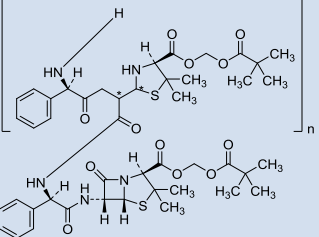
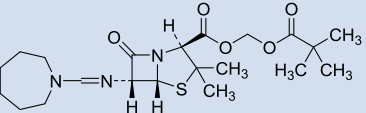
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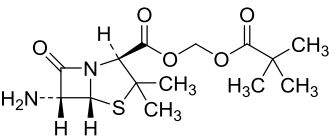
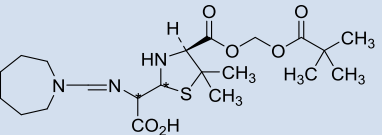
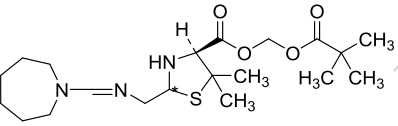
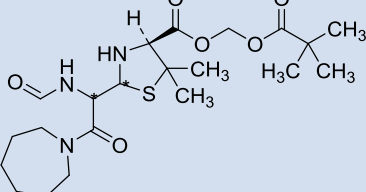
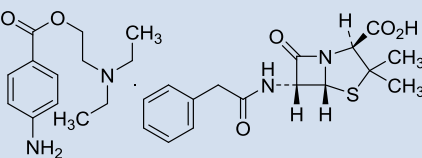
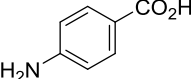
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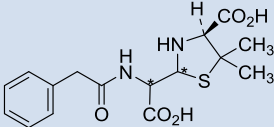
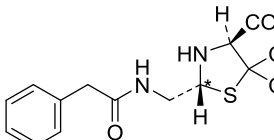
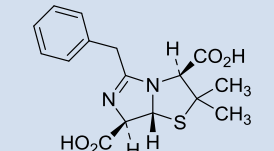
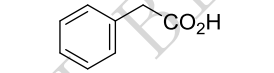
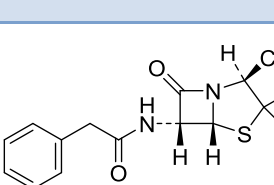
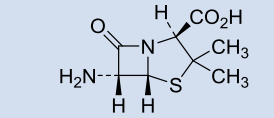
Molecular Weight:

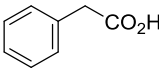
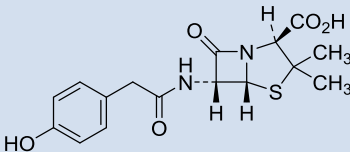
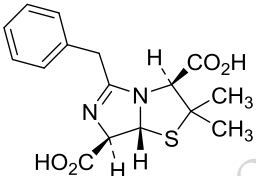
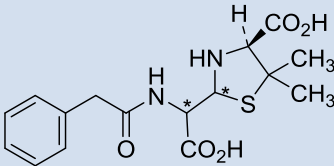
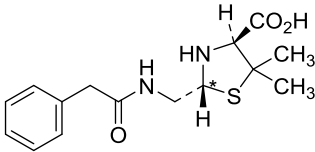
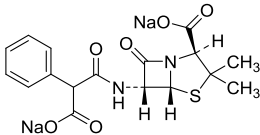
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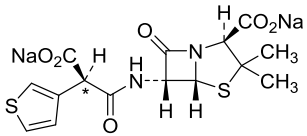
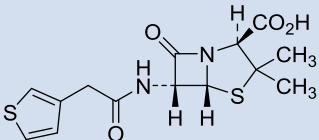
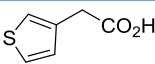
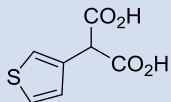
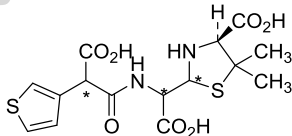
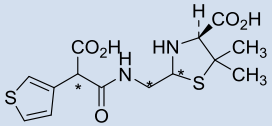
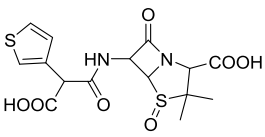
Imp B (EP)	 Chemical Formula: C₈H₉NO₂ Exact Mass: 151.06333 Molecular Weight: 151.16500	Chemical Formula: C₈H₉NO₂ Exact Mass: 151.06333 Molecular Weight: 151.16500
Imp C (EP)	 Chemical Formula: C₁₅H₂₁N₃O₃S Exact Mass: 323.13036 Molecular Weight: 323.41100	Chemical Formula: C₁₅H₂₁N₃O₃S Exact Mass: 323.13036 Molecular Weight: 323.41100
Imp D (EP)	 Chemical Formula: C₁₆H₂₁N₃O₅S Exact Mass: 367.12019 Molecular Weight: 367.42000	Chemical Formula: C₁₆H₂₁N₃O₅S Exact Mass: 367.12019 Molecular Weight: 367.42000
Imp E (EP)	 Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500	Chemical Formula: C₁₆H₁₉N₃O₄S Exact Mass: 349.10963 Molecular Weight: 349.40500
Imp F (EP)	 Chemical Formula: C₅H₁₁NO₂S Exact Mass: 149.05105 Molecular Weight: 149.20800	Chemical Formula: C₅H₁₁NO₂S Exact Mass: 149.05105 Molecular Weight: 149.20800
Imp G (EP)	 Chemical Formula: C₉H₁₁NO₂ Exact Mass: 165.07898 Molecular Weight: 165.19200	Chemical Formula: C₉H₁₁NO₂ Exact Mass: 165.07898 Molecular Weight: 165.19200
Imp H (EP)	 Chemical Formula: C₂₃H₂₉N₃O₈S Exact Mass: 507.16754 Molecular Weight: 507.55800	Chemical Formula: C₂₃H₂₉N₃O₈S Exact Mass: 507.16754 Molecular Weight: 507.55800

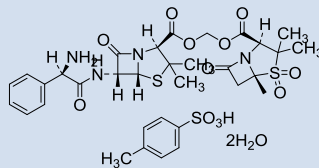
Imp I (EP)  Chemical Formula: $C_{16}H_{19}N_3O_4S$ Exact Mass: 349.10963 Molecular Weight: 349.40500	Chemical Formula: $C_{16}H_{19}N_3O_4S$ Exact Mass: 349.10963 Molecular Weight: 349.40500
Pivampicillin  Chemical Formula: $C_{22}H_{29}N_3O_6S$ Exact Mass: 463.17771 Molecular Weight: 463.54900	Chemical Formula: $C_{22}H_{29}N_3O_6S$ Exact Mass: 463.17771 Molecular Weight: 463.54900
Imp A (EP)  Chemical Formula: $C_{23}H_{32}N_2O_7S$ Exact Mass: 480.19302 Molecular Weight: 480.57600	Chemical Formula: $C_{23}H_{32}N_2O_7S$ Exact Mass: 480.19302 Molecular Weight: 480.57600
Imp B (EP)  Chemical Formula: $C_{22}H_{29}N_3O_6S$ Exact Mass: 463.17771 Molecular Weight: 463.54900	Chemical Formula: $C_{22}H_{29}N_3O_6S$ Exact Mass: 463.17771 Molecular Weight: 463.54900
Imp C (EP)  Chemical Formula: $C_{45}H_{59}N_5O_{12}S_2$ Exact Mass: 925.36016 Molecular Weight: 926.11000	Chemical Formula: $C_{45}H_{59}N_5O_{12}S_2$ Exact Mass: 925.36016 Molecular Weight: 926.11000
Pivmecillinam  Chemical Formula: $C_{21}H_{33}N_3O_5S$ Exact Mass: 439.21409 Molecular Weight: 439.57100	Chemical Formula: $C_{21}H_{33}N_3O_5S$ Exact Mass: 439.21409 Molecular Weight: 439.57100

Imp A (EP)	 Chemical Formula: $C_{14}H_{22}N_2O_5S$ Exact Mass: 330.12494 Molecular Weight: 330.39900	Chemical Formula: $C_{14}H_{22}N_2O_5S$ Exact Mass: 330.12494 Molecular Weight: 330.39900
Imp B (EP)	 Chemical Formula: $C_{21}H_{35}N_3O_6S$ Exact Mass: 457.22466 Molecular Weight: 457.58600	Chemical Formula: $C_{21}H_{35}N_3O_6S$ Exact Mass: 457.22466 Molecular Weight: 457.58600
Imp C (EP)	 Chemical Formula: $C_{20}H_{35}N_3O_4S$ Exact Mass: 413.23483 Molecular Weight: 413.57700	Chemical Formula: $C_{20}H_{35}N_3O_4S$ Exact Mass: 413.23483 Molecular Weight: 413.57700
Imp D (EP)	 Chemical Formula: $C_{21}H_{35}N_3O_6S$ Exact Mass: 457.22466 Molecular Weight: 457.58600	Chemical Formula: $C_{21}H_{35}N_3O_6S$ Exact Mass: 457.22466 Molecular Weight: 457.58600
Procaine benzylpenicillin	 Chemical Formula: $C_{29}H_{38}N_4O_6S$ Exact Mass: 570.25121 Molecular Weight: 570.70500	Chemical Formula: $C_{29}H_{38}N_4O_6S$ Exact Mass: 570.25121 Molecular Weight: 570.70500
Imp A (EP)	 Chemical Formula: $C_7H_7NO_2$ Exact Mass: 137.04768 Molecular Weight: 137.13800	Chemical Formula: $C_7H_7NO_2$ Exact Mass: 137.04768 Molecular Weight: 137.13800

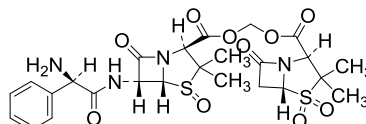
Imp B (EP)  Chemical Formula: $C_{16}H_{20}N_2O_5S$ Exact Mass: 352.10929 Molecular Weight: 352.40500	Chemical Formula: $C_{16}H_{20}N_2O_5S$ Exact Mass: 352.10929 Molecular Weight: 352.40500
Imp C (EP)  Chemical Formula: $C_{15}H_{20}N_2O_3S$ Exact Mass: 308.11946 Molecular Weight: 308.39600	Chemical Formula: $C_{15}H_{20}N_2O_3S$ Exact Mass: 308.11946 Molecular Weight: 308.39600
Imp D (EP)  Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000	Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000
Imp E (EP)  Chemical Formula: $C_8H_8O_2$ Exact Mass: 136.05243 Molecular Weight: 136.15000	Chemical Formula: $C_8H_8O_2$ Exact Mass: 136.05243 Molecular Weight: 136.15000
Penicillin  Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000	Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000
Imp A (EP)  Chemical Formula: $C_8H_{12}N_2O_3S$ Exact Mass: 216.05686 Molecular Weight: 216.25500	Chemical Formula: $C_8H_{12}N_2O_3S$ Exact Mass: 216.05686 Molecular Weight: 216.25500

Imp B (EP)	 Chemical Formula: $C_8H_8O_2$ Exact Mass: 136.05243 Molecular Weight: 136.15000	Chemical Formula: $C_8H_8O_2$ Exact Mass: 136.05243 Molecular Weight: 136.15000
Imp C (EP)	 Chemical Formula: $C_{16}H_{18}N_2O_5S$ Exact Mass: 350.09364 Molecular Weight: 350.38900	Chemical Formula: $C_{16}H_{18}N_2O_5S$ Exact Mass: 350.09364 Molecular Weight: 350.38900
Imp D (EP)	 Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000	Chemical Formula: $C_{16}H_{18}N_2O_4S$ Exact Mass: 334.09873 Molecular Weight: 334.39000
Imp E (EP)	 Chemical Formula: $C_{16}H_{20}N_2O_5S$ Exact Mass: 352.10929 Molecular Weight: 352.40500	Chemical Formula: $C_{16}H_{20}N_2O_5S$ Exact Mass: 352.10929 Molecular Weight: 352.40500
Imp F (EP)	 Chemical Formula: $C_{15}H_{20}N_2O_3S$ Exact Mass: 308.11946 Molecular Weight: 308.39600	Chemical Formula: $C_{15}H_{20}N_2O_3S$ Exact Mass: 308.11946 Molecular Weight: 308.39600
Carbenicillin	 Chemical Formula: $C_{17}H_{16}N_2Na_2O_6S$ Exact Mass: 422.05245 Molecular Weight: 422.36254	Chemical Formula: $C_{17}H_{16}N_2Na_2O_6S$ Exact Mass: 422.05245 Molecular Weight: 422.36254

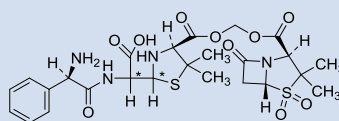
Ticarcillin	 Chemical Formula: $C_{15}H_{14}N_2Na_2O_6S_2$ Exact Mass: 428.00887 Molecular Weight: 428.38454	Chemical Formula: $C_{15}H_{14}N_2Na_2O_6S_2$ Exact Mass: 428.00887 Molecular Weight: 428.38454
Imp A (EP)	 Chemical Formula: $C_{14}H_{16}N_2O_4S_2$ Exact Mass: 340.05515 Molecular Weight: 340.41200	Chemical Formula: $C_{14}H_{16}N_2O_4S_2$ Exact Mass: 340.05515 Molecular Weight: 340.41200
Imp B (EP)	 Chemical Formula: $C_6H_6O_2S$ Exact Mass: 142.00885 Molecular Weight: 142.17200	Chemical Formula: $C_6H_6O_2S$ Exact Mass: 142.00885 Molecular Weight: 142.17200
Imp C (EP)	 Chemical Formula: $C_7H_6O_4S$ Exact Mass: 185.99868 Molecular Weight: 186.18100	Chemical Formula: $C_7H_6O_4S$ Exact Mass: 185.99868 Molecular Weight: 186.18100
Imp D (EP)	 Chemical Formula: $C_{15}H_{18}N_2O_7S_2$ Exact Mass: 402.05554 Molecular Weight: 402.43600	Chemical Formula: $C_{15}H_{18}N_2O_7S_2$ Exact Mass: 402.05554 Molecular Weight: 402.43600
Imp E (EP)	 Chemical Formula: $C_{14}H_{18}N_2O_5S_2$ Exact Mass: 358.06571 Molecular Weight: 358.42700	Chemical Formula: $C_{14}H_{18}N_2O_5S_2$ Exact Mass: 358.06571 Molecular Weight: 358.42700
Ticarcillin Oxide Imp	 Chemical Formula: $C_{15}H_{16}N_2O_7S_2$ Exact Mass: 400.03989 Molecular Weight: 400.42000	Chemical Formula: $C_{15}H_{16}N_2O_7S_2$ Exact Mass: 400.03989 Molecular Weight: 400.42000

Sultamicillin

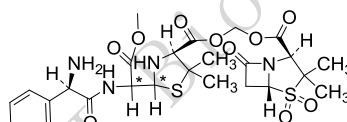
Chemical Formula: $C_{26}H_{32}N_4O_9S_2$
 Exact Mass: 608.16107
 Molecular Weight: 608.68100

Chemical Formula: **$C_{26}H_{32}N_4O_9S_2$** **Exact Mass:****608.16107****Molecular Weight:****608.68100****Sultamicillin Imp A****(EP)****Sultamicillin Oxide****Imp 1**

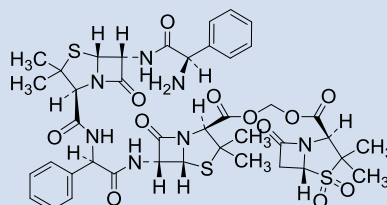
Chemical Formula: $C_{25}H_{30}N_4O_{10}S_2$
 Exact Mass: 610.14033
 Molecular Weight: 610.65300

Chemical Formula: **$C_{25}H_{30}N_4O_{10}S_2$** **Exact Mass:****610.14033****Molecular Weight:****610.65300****Sultamicillin Open****ring Imp**

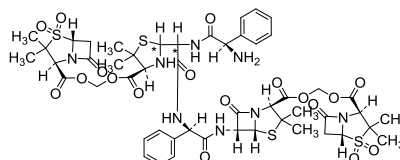
Chemical Formula: $C_{25}H_{32}N_4O_{10}S_2$
 Exact Mass: 612.15598
 Molecular Weight: 612.66900

Chemical Formula: **$C_{25}H_{32}N_4O_{10}S_2$** **Exact Mass:****612.15598****Molecular Weight:****612.66900****Sultamicillin Open****ring methyl Imp**

Chemical Formula: $C_{26}H_{34}N_4O_{10}S_2$
 Exact Mass: 626.17163
 Molecular Weight: 626.69600

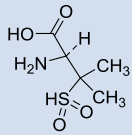
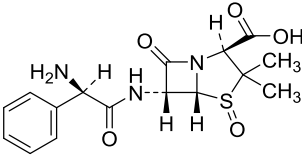
Chemical Formula: **$C_{26}H_{34}N_4O_{10}S_2$** **Exact Mass:****626.17163****Molecular Weight:****626.69600****Sultamicillin Imp F****(BP)****Sultamicillin Dimer****1**

Chemical Formula: $C_{41}H_{47}N_7O_{12}S_3$
 Exact Mass: 925.24448
 Molecular Weight: 926.04400

Chemical Formula: **$C_{41}H_{47}N_7O_{12}S_3$** **Exact Mass:****925.24448****Molecular Weight:****926.04400****Sultamicillin Imp G****(BP)****Sultamicillin Dimer****2**

Chemical Formula: $C_{50}H_{60}N_8O_{18}S_4$
 Exact Mass: 1188.29084
 Molecular Weight: 1189.30800

Chemical Formula: **$C_{50}H_{60}N_8O_{18}S_4$** **Exact Mass:****1188.29084****Molecular Weight:****1189.30800**

Sultamicillin High temperature degradation of impurities	 Chemical Formula: $C_5H_{11}NO_4S$ Exact Mass: 181.04088 Molecular Weight: 181.20600	Chemical Formula: $C_5H_{11}NO_4S$ Exact Mass: 181.04088 Molecular Weight: 181.20600
Sultamicillin Oxide Imp 2	 Chemical Formula: $C_{16}H_{19}N_3O_5S$ Exact Mass: 365.10454 Molecular Weight: 365.40400	Chemical Formula: $C_{16}H_{19}N_3O_5S$ Exact Mass: 365.10454 Molecular Weight: 365.40400