# Table S2. List of 58 NR-PKSs related to known polyketides.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Group** | **Accession No.** | **Protein Name** | **Products** | **Catalytic mechanisms** | **Ref.** |
| 1 | I | XP\_681178 | *Aspergillus nidulans* OrsA | Lecanoric acid | TE (cross-coupling) | ([Gressler et al., 2015](#_ENREF_20)) |
| 2 | I | AGC95321 | *Aspergillus terreus* AtCURS2 | 10,11-Dehydrocurvularin | TE (macrolactone closure) | ([Xu et al., 2013a](#_ENREF_45)) |
| 3 | I | ACM42403 | *Chaetomium chiversii* RADS2 | Radicicol | TE (macrolactone closure) | ([Xu et al., 2013b](#_ENREF_46)) |
| 4 | I | ABB90282 | *Fusarium graminearum* PKS13 | Zearalenone | TE (macrolactone closure) | ([Wang et al., 2009](#_ENREF_43)) |
| 5 | I | ACD39762 | *Hypomyces subiculosus* Hpm3 | Hypothemycin | TE (macrolactone closure) | ([Reeves et al., 2008](#_ENREF_34)) |
| 6 | I | ACD39770 | *Pochonia chlamydosporia* RDC1 | Radicicol | TE (macrolactone closure) | ([Zhou et al., 2010](#_ENREF_52)) |
| 7 | II | BAD22832 | *Bipolaris oryzae* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Moriwaki et al., 2004](#_ENREF_32)) |
| 8 | II | BAA18956 | *Colletotrichum lagenaria* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Vagstad et al., 2012](#_ENREF_42)) |
| 9 | II | ABU63483 | *Elsinoe fawcettii* PKS1 | Elsinochrome | TE/CLC (the second-ring cyclization) | ([Liao and Chung, 2008](#_ENREF_27)) |
| 10 | II | AAO60166 | *Endoconidiophora resinifera* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Loppnau et al., 2004](#_ENREF_31)) |
| 11 | II | AAD31436 | *Exophiala dermatitidis* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Wheeler et al., 2008](#_ENREF_44)) |
| 12 | II | AAN75188 | *Exophiala lecanii-corni* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Cheng et al., 2004](#_ENREF_8)) |
| 13 | II | AAN59953 | *Glarea lozoyensis* PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Zhang et al., 2003](#_ENREF_50)) |
| 14 | II | AAD38786 | *Nodulisporium* sp. PKS1 | T4HN | TE/CLC (the second-ring cyclization) | ([Fulton et al., 1999](#_ENREF_18)) |
| 15 | II | ABD47522 | *Ophiostoma piceae* PKSA | T4HN | TE/CLC (the second-ring cyclization) | ([Tanguay et al., 2007](#_ENREF_39)) |
| 16 | II | CAM35471 | *Sordaria macrospora* PKS | T4HN | TE/CLC (the second-ring cyclization) | ([Engh et al., 2007](#_ENREF_15)) |
| 17 | III | AAC39471 | *Aspergillus fumigatus* Alb1 | Naphthopyrones | TE/CLC (the second-ring cyclization) | ([Tsai et al., 2001](#_ENREF_41)) |
| 18 | III | EDP55264 | *Aspergillus fumigatus* PksP | T4HN | TE/CLC (the second-ring cyclization) | ([Langfelder et al., 1998](#_ENREF_25)) |
| 19 | III | Q03149 | *Aspergillus nidulans* WA | YWA1, Naphthopyrone | TE/CLC (the second-ring cyclization) | ([Fujii et al., 2001](#_ENREF_17)) |
| 20 | III | EHA28527 | *Aspergillus niger* AlbA | YWA1, Dimeric naphtho-γ-pyrones | TE/CLC (the second-ring cyclization) | ([Chiang et al., 2011](#_ENREF_9)) |
| 21 | III | CAB92399 | *Fusarium fujikuroi* PKS4 | Bikaverin | TE/CLC (the second-ring cyclization) | ([Linnemannstons et al., 2002](#_ENREF_29)) |
| 22 | III | AAU10633 | *Fusarium graminearum* PKS12 | Aurofusarin | TE/CLC (the second-ring cyclization) | ([Frandsen et al., 2011](#_ENREF_16)) |
| 23 | IV | AAS90093 | *Aspergillus flavus* PksA | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Ehrlich et al., 2004](#_ENREF_14)) |
| 24 | IV | Q12397 | *Aspergillus nidulans* StcA | Sterigmatocystin | TE/CLC (the third-ring cyclization) | ([Klejnstrup et al., 2012](#_ENREF_21)) |
| 25 | IV | ACH72912 | *Aspergillus ochraceoroseus* AflC | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Cary et al., 2009](#_ENREF_7)) |
| 26 | IV | BAE71314 | *Aspergillus oryzae* PKSA | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Tominaga et al., 2006](#_ENREF_40)) |
| 27 | IV | AAS66004 | *Aspergillus parasiticus* AflC | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Yu et al., 2004](#_ENREF_48)) |
| 28 | IV | Q12053 | *Aspergillus parasiticus* PKSA | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Korman et al., 2010](#_ENREF_22)) |
| 29 | IV | AAT69682 | *Cercospora nicotianae* CTB1 | Cercosporin | TE (pyrone formation) | ([Newman et al., 2012](#_ENREF_33)) |
| 30 | IV | AAZ95017 | *Dothistroma septosporum* PKSA | Aflatoxin | TE/CLC (the third-ring cyclization) | ([Zhang et al., 2007](#_ENREF_51)) |
| 31 | IV | CCE67070 | *Fusarium fujikuroi* Fsr1 | Fusarubin | R | ([Studt et al., 2012](#_ENREF_37)) |
| 32 | IV | AAS92537 | *Leptosphaeria maculans* PKS1 | Sirodesmin PL | TE/CLC (the third-ring cyclization) | ([Gardiner et al., 2004](#_ENREF_19)) |
| 33 | IV | XP\_003039929 | *Nectria haematococca* PKS1 | Bostrycoidin, Fusarubin | R | ([Awakawa et al., 2012](#_ENREF_2)) |
| 34 | V | XP\_746434 | *Aspergillus fumigatus* EncB | Endocrocin | MβL-TE | ([Lim et al., 2012](#_ENREF_28)) |
| 35 | V | CBF70385 | *Aspergillus nidulans* AptB | Asperthecin | MβL-TE | ([Szewczyk et al., 2008](#_ENREF_38)) |
| 36 | V | CBF90099 | *Aspergillus nidulans* MdpF | Atrochrysone carboxylic acid | MβL-TE | ([Chiang et al., 2010](#_ENREF_10)) |
| 37 | V | CBF79145 | *Aspergillus nidulans* PkgB | Dehydrocitreoisocoumarin, Citreisocoumarin, Alternariol | MβL-TE | ([Ahuja et al., 2012](#_ENREF_1)) |
| 38 | V | XP\_001394706 | *Aspergillus niger* AdaB | TAN-1612,BMS-192548 | MβL-TE | ([Li et al., 2011](#_ENREF_26)) |
| 39 | V | XP\_001217071 | *Aspergillus terreus* ACTE | Emodin | MβL-TE | ([Awakawa et al., 2009](#_ENREF_3)) |
| 40 | V | ADI24932 | *Penicillium aethiopicum* VrtG | Viridicatumtoxin | MβL-TE | ([Chooi et al., 2010](#_ENREF_12)) |
| 41 | VI | XP\_681652 | *Aspergillus nidulans* AusA | 3,5-dimethylorsellinic acid, Austinol, Dehydroaustinol | TE-like (hydrolysis) | ([Lo et al., 2012](#_ENREF_30)) |
| 42 | VI | XP\_664052 | *Aspergillus nidulans* PkbA | 3-methylorsellinic acid, Cichorine | TE-like (hydrolysis) | ([Ahuja et al., 2012](#_ENREF_1)) |
| 43 | VI | ADY00130 | *Penicillium brevicompactum* MpaC | 5-methylorsellinic acid, Mycophenolic acid | TE-like (hydrolysis) | ([Regueira et al., 2011](#_ENREF_35)) |
| 44 | VI | est\_GWPlus\_C\_190476 | *Aspergillus niger* DtbA | 2,4-dihydroxy-3,5,6-trimethylbenzaldehyde, 6-ethyl-2,4-dihydroxy-3,5-dimethylbenzaldehyde | R | ([Yeh et al., 2013](#_ENREF_47)) |
| 45 | VII | CAN87161 | *Acremonium strictum* MOS | 3-methylorcinaldehyde | R | ([Bailey et al., 2007](#_ENREF_4)) |
| 46 | VII | XP\_658638 | *Aspergillus nidulans* AfoE | Asperfuranone | R | ([Chiang et al., 2009](#_ENREF_11)) |
| 47 | VII | XP\_658127 | *Aspergillus nidulans* PkdA | 2-ethyl-4,6-dihydroxy-3,5-dimethylbenzaldehyde | R | ([Ahuja et al., 2012](#_ENREF_1)) |
| 48 | VII | ANID\_07903 | *Aspergillus nidulans* PkeA | 2,4-dihydroxy-3-methyl-6-(2-oxopropyl)benzaldehyde | R | ([Ahuja et al., 2012](#_ENREF_1)) |
| 49 | VII | XP\_660834 | *Aspergillus nidulans* PkfA | Orsellinaldehyde | R | ([Ahuja et al., 2012](#_ENREF_1)) |
| 50 | VII | XP\_659636 | *Aspergillus nidulans* PkhA | 2,4-dihydroxy-6[(3E,5E,7E)-2-oxonona-3,5,7-trienyl]benzaldehyde | R | ([Ahuja et al., 2012](#_ENREF_1)) |
| 51 | VII | XP\_660990 | *Aspergillus nidulans* PkiA | 2,4-dihydroxy-3-methyl-6-(2-oxopropyl)benzaldehyde | R | ([Ahuja et al., 2012](#_ENREF_1)) |
| 52 | VII | EHA28237 | *Aspergillus niger* AzaA | Azanigerone A | R | ([Zabala et al., 2012](#_ENREF_49)) |
| 53 | VII | XP\_001212610 | *Aspergillus terreus* ATEG\_03432 | Citrinin | R | ([Boruta and Bizukojc, 2014](#_ENREF_6)) |
| 54 | VII | AGN71604 | *Monascus pilosus* PKS5 | Rubropunctatin | R | ([Balakrishnan et al., 2013](#_ENREF_5)) |
| 55 | VII | BAD44749 | *Monascus purpureus* PksCT | Citrinin | R | ([Shimizu et al., 2005](#_ENREF_36)) |
| 56 | VII | DAA64703 | *Talaromyces stipitatus* TropA | 3-methylorcinaldehyde | R | ([Davison et al., 2012](#_ENREF_13)) |
| 57 | VIII | AFL91703 | *Armillaria mellea* ArmB | Orsellinic acid, melledonol | TE (cross-coupling) | ([Lackner et al., 2013](#_ENREF_23)) |
| 58 | VIII | XP\_007307184 | *Stereum hirsutum* FP-91666 SS1 PKS1 | MS3 | TE (cross-coupling) | ([Lackner et al., 2012](#_ENREF_24)) |

The related information of group V and *Aspergillus niger* DtbA in groupVI is showed by physically discrete PRE domains instead of NR-PKSs.

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