* + 1. Identified spacer sequences through CRISPR analysis in the *Yersinia* and *Salmonella* datasets

*Yersinia*

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| **Newly identified spacer sequences** | | | |
| **Spacer ID** | **Sequence 5’ to 3’** | **Spacer ID** | **Sequence 5’ to 3’** |
| 1905 | GTCAACGCTTCACTCCCTGCGCGGGGTATAAC | 1946 | GTCAACGCTTCACTCCTTGCGCGGGGTATAAC |
| 1906 | ATCATGAAAGACATTGTTCGCCAGTCCCCTGA | 1947 | ACCCCCCCATTTCTTGAAGTGCTGATAGTGGC |
| 1907 | TGATGAATTGCGTCATCCAGAGCATTGTGATG | 1948 | TCATATCCCTCAGAATCAAAAGGTAGAAATGA |
| 1908 | GTCAACCTTCGGATGATTATACGGTGCTTTTT | 1949 | TACCAAAGCCGGAGAATGTGGCTGTGCCACAA |
| 1909 | AATTGAAATAATGGTTAGTGGTAACGGGCAAG | 1950 | AATATATTTACGGTGGAGGTGTTGCTGAAAAT |
| 1910 | ACTTGCCGCCATCATTGAATTGAATCAACAAT | 1951 | ACCTGCAAATTCTTTAGCTTCAATAACATCTA |
| 1911 | GCACAGGTTGGCACCGCACAGGTCGGCACCGT | 1952 | TAACTTGAACTCTTCGAAATACATTCGACCTT |
| 1912 | TTAACCCTCCCCACCCCCACTAATCCCCATAG | 1953 | CGTTAGTTACCGCACGACCGGCGGTCGCAGTG |
| 1913 | AATGTGAGGTATCTATGGTCCACTCTCATGAC | 1954 | ATCACACATAATAAAATCATTTTTAACGTACA |
| 1914 | TTTTGCGATTGCAAGTTCTTCAGGTACCACGGA | 1955 | ATAGGCATAAACTTCATCATCGAACTGTAAAA |
| 1915 | GCCAAATTGAAAATTACTAATCGGGTCTACTT | 1956 | TCCCGTCTATCGCCGCGCTTAACCGCCACCAG |
| 1916 | AGGGGGAATCACGCGAACGAATCCTACGCAAA | 1957 | ATCGGCTGGGATGTTACTCAGGAAGCGCAGAT |
| 1917 | GATACTTCTAAGGTGCAAGGAAAAGCTACCGA | 1958 | CATTCAAAAGCGAGCAACAGGCCAATGCAATA |
| 1918 | ACTACAAGGTTGTACAGAAACGAGAAGGACTA | 1959 | ATAATCGTATCATCATTTTCAATTAATTTGTC |
| 1919 | TCAGCATTCCGTGATGGGATGATTAAGGTTGC | 1960 | AGCTCAGCAATGCTGAAAGGCCCGATTGATAT |
| 1920 | TGACTTGGACTTATCGGAAGATGAACTGGATA | 1961 | AAATGGAGAAACCACCCTTATTACCCGGTTGT |
| 1921 | TTTTGATCATGAAAGTCCCGAAAATCCTTGGG | 1962 | AGATTATTTAATGAGTGTCGGAAATATGAATC |
| 1922 | CAGTTGGACGTGATGCAGAAATGGCCGAGGAG | 1963 | AAGTTAAACAGTATGTGGACGATGAAATAAGTA |
| 1923 | ATCCGGTATCTCCGGAGAGCTCAACTGTGGTG | 1964 | AAGTTAAACAGTATGTGGACGATGAAATAAGT |
| 1924 | TAGCAACTCAGCAAGTGCTGCCACGCTTCCGG | 1965 | AATTGAAATAATGGTTACTGGCAACGGGCAAG |
| 1925 | CTGCTGAGAGATTGATAAATGATGGGTTTCTT | 1966 | GTGTAAAGGGGCAATTAAGCCCCTATGTTTAT |
| 1926 | GTATTGCACGGCAAGAGCGCATAAGGAATGTT | 1967 | TCATATCCCTCAGAATCAAAAGGTAGAAATGAG |
| 1927 | ATGAAAGAATTAGATAGTTTCACTGTAGAGAG | 1968 | ATAATATTTATCCATTTCCAGACATTGGGATG |
| 1928 | AAGAAATATAGATGGCAAGCGGATTGCGCAAG | 1969 | GAAGTACGGTCAGGAGCCGGGGGTGCAGTTTT |
| 1929 | ATCCAGAAAGCCCACTACGGCTGGCAATGATT | 1970 | GTTCGAAATTATCCTTACGTGCAAGGAGCCGT |
| 1930 | CGCCGCCACCGTGCCTGGAGTCGTGCCCACAT | 1971 | ACCATGAGAGGAATGAGAATACTGACGACATT |
| 1931 | TCATGGCAGCGGGTGACGTTCGCAAGAAAATT | 1972 | TTATCAGGGTGAGGATAGACACGACCCCAAAA |
| 1932 | ATAGGTTGAGGTCACGCTCAGGTACTGATTAAC | 1973 | ATGCCACAAATGAGTTTGTTTCCATAGCAGG |
| 1933 | TTGCACTGCTCCATCGATTGCATTGGAGTAAC | 1974 | TGTAGCTGTAAATCCAACTGGCATTGGAGGAT |
| 1934 | AACGAAGAGGCAGATGATGGCCGATGATAATA | 1975 | ACCCACACGCCGCCTGCCCATTCGCCGGTAAC |
| 1935 | GCGCAACGTCCGTTATTTCGGTTACAGGCGAG | 1976 | GATCTACTTCGCGATACCGCCCATCGCTGGCT |
| 1936 | TTGATGCATAGACAATTCATGGATAGTAAGCT | 1977 | ATAGTGCCGGGGCGATGACAAGAGCAGTGATC |
| 1937 | GTTAAAGATGCGCTAACGGCTATGATTCAAGT | 1978 | GAAAACGGAACATTACAATCCGGCGGATTACA |
| 1938 | AGCGTGCACGGCCTTGCGAGTATGGCTTGAAG | 1979 | AGCCCGCTGGCTTACGACCCGAAGGGCGGTGA |
| 1939 | GGTAACCAGCCATTCATCGCAGAGAACTTTTG | 1980 | ATCCAGGCATCAGACCCGACAGTTGTGACCAG |
| 1940 | CATCTGATATGGATATAATGGCGTTAGATAAT | 1981 | AGCTGTAGGTTCGTCTGCGTCTGTTATGGCCC |
| 1941 | TCAATGTAATCAAATAATGGTGTGGCTGTTTT | 1982 | AAGTAGCAAAAAGATTTTTAGTATAGATAAAT |
| 1942 | ATCCGTGTAAAGGGGCAATTAAGCCCCTATGT | 1983 | AATTTATTATAAGTGGAAATAATACTTGACTT |
| 1943 | AATTCGCAGACATAAAAAAGCCCACATAAGTG | 1984 | GGCTTCGTTGCCCCACAACGCGGGGACCAACT |
| 1944 | TCGAAGAACTCAGCCATCTTCTTGTCTGTCAT | 1985 | TGAGCGATGGAGTGCCGCAGCTACACAACAAC |
| 1945 | AGTAGAGTTGGCAGGTGATGCAACAGAGCCGT | 1986 | GGTTGTTCAGGGTAAATAAATCTCACCAGCCAT |
| 1987 | CTTCAAAATAATGTTAATGCTAGGCTAGAGGC | 2028 | AGAATTACAAACGGCTTATAACACAGCCATAG |
| 1988 | TCTAGTACGCCAATTTTGTGATTCTTTATAAT | 2029 | TGCAACTAAACAAGTTATTGAGGGATATATGG |
| 1989 | TGCTGAGATTCCAGTATTCTGAATTAATTTAC | 2030 | TGAGAACCAGATAAATCCTCACCTAAATTTGTT |
| 1990 | GAAAATCACATTGCCGGCGTGGATGAACAAGG | 2031 | TATTCCCGCTAAGTTAGTCCCTGTATTTGCAA |
| 1991 | AAGTTAAACAGTATGTTGACGATGAAATAAGT | 2032 | GCAACTAAAGAAGTTATAGAGTCATATATGG |
| 1992 | CGCTAGACGCTTCATTTTTCATTGTAACTCAA | 2033 | CTAGTGTAATAGCTAATAACACGTCTGGTATT |
| 1993 | GTGTCAGCTTTTAACGCATATAATGAACCAAT | 2034 | TAATTGAGTTATCACGATCAGCCAACGCTTGCGCCTG |
| 1994 | TATCTGGAATCCCAGAAGTATTATTAGCTATT | 2035 | AGTGGTGATTACGCAATGCAGCAAACATATAA |
| 1995 | TTAAAAGTGATGCTAATTCAGGAAGTGCGGAT | 2036 | ATAAGAAAAATTATGAAGAGAAAAACCACATG |
| 1996 | TATGTAGATGCTTTAAAAGGAGTGAAGAAAAC | 2037 | AATTGACACTAGCACGTTACTTAATAGTCAATA |
| 1997 | ACCATAAAATGTATGGTTATATGATTTTACCC | 2038 | CCAGATTTGATTGGCGTGGGTTACTACGTTGAAT |
| 1998 | ACTAATGTTTATATATCTTTAATATCTGAGGA | 2039 | CTCCGGAGTCACAACCATCTCAGAACAGATGT |
| 1999 | TCGTTGAAAGAACACATGTTGATGATGATTGG | 2040 | AACTTCATAATAACCATTTTTACGGATGGCAT |
| 2000 | AAACTACTATTAATTTATTAACTCAAAATGTC | 2041 | GGTTCCCGGCGAACCCAACATGGCAATATTTT |
| 2001 | AAAGAGAAGCCCCTCATTATGAATGATCGGTA | 2042 | ATTTCCGCTAGTCGCACATAATGAGCGTCGAG |
| 2002 | TCACGAGTTTTAACATAAGTAAATGTACTACG | 2043 | CAAGAGCGATACAGACGAACGCCCCGGAATTAT |
| 2003 | CCTTGGCAAGCCCATTCTGTTTCGGATAACTG | 2044 | CCACCGCAGACGACCAGCTCGTCCGTGTCGTGA |
| 2004 | AGCTACTATCGGGAGAACATCAGCGGTACAAA | 2045 | TAAATTCTCAGCCATTTGCTTTCGCCCTCGCT |
| 2005 | TCCAGTAAATGCACTTTCCGCATCAATGTGTG | 2046 | AAGGGAGTTTTGGCCCATTTGTAGTTGGCTAA |
| 2006 | GCCCCGAAAAGTGTGTCTATATTAGGCATTGTT | 2047 | TGAACTGGGTCAGCCATCGCAGCATTTTCTTG |
| 2007 | GGGGAAGCCAGCAACGGTGCGGCTTTAGAGGGAGGGGG | 2048 | TCATTATTGATTTCGATTGGCTCAAGCTCGGT |
| 2008 | ATATGAATGATTCGATTGAGACTAACCAGCAA | 2049 | AACCCACTTTTAAATGCAGAAGGTAATGCAGT |
| 2009 | ATCACAACTTCATTTCCCTACAGGAGGTGATC | 2050 | ACTGAGGGGCGCAGCCGTGAGCCATTGCACCA |
| 2010 | AAAAGCAAAGGGGTAAATAATGCATTCATTAA | 2051 | AGATGGATAATATTGAATCTTCATCATCTGCG |
| 2011 | AGCATCACCGCCACCCCTACATCCGGAAGCGT | 2052 | TACCCAATGCATATTTCAACCCTTGTGAAAAC |
| 2012 | GCGCGTAATGTTGAGCAGCCTAATCTGGCTGG | 2053 | GGTATTCGAATCAAGGGAGAGAGTGAATGAGT |
| 2013 | GTAGCTGCCGCGCTCCATCGTTCGATTGAATT | 2054 | AGTTCAATGACGGCGGCAAATGGAATGAGCCT |
| 2014 | AATTGAATATAGAAAAGAATTCGAAGCTAGAT | 2055 | AATATTCGCCGGAACCTCACCACCAGCCACCC |
| 2015 | ACGTCGCGCAACGCAAGCGAGCCAGCGCACCG | 2056 | ATCTTCACTGAAGCTATAACGTATCCGTAGCA |
| 2016 | GATGCCGGTGCTATCAATGCCGATGTGGGTAA | 2057 | AACGACCATGACCGCAAGACATTAATCATTGA |
| 2017 | ATACACGTATCGGAACTCTAATGGGGCACGAT | 2058 | AGGGACGGCCACTCTTTTTACGCGGCATCGAG |
| 2018 | AAATGGCCTGGCGGCTTTGGGGTCGTGGCCTT | 2059 | ATATGCATGCGTGCCATCTTTTCATGCCACTC |
| 2019 | ATATTCATGACAAAACCGGCGTCATTAACTAA | 2060 | CACTAATGATTGCATTCACCTTTTCTATTGCG |
| 2020 | TTGCTAACATTCGCACCATTAGAACTTTTGTT | 2061 | GGCATGAAAGACCATGACATTTGCAGCAAGTT |
| 2021 | TCCGGTCAACGCCACGGGTTGCTACATAATTA | 2062 | TTGTAGCTTTAACACTAGCAGAACTACCGACG |
| 2022 | TATGTCGGATAGTAACGTCGAGGGGTTCCGAT | 2063 | AGCCACGTTCTCCCACCGGTACGGCGATAAAT |
| 2023 | TTTGGTGTCTCAGAGATGACAATTAACAACTG | 2064 | GCTAATGGTGCTGAAGGAACAGGGGGGGTGGG |
| 2024 | TGAAATATGGCGTGATAAGCCGGAAGCGCAGG | 2065 | GTTGCCGCTTAATGATGATGCTGTGATCATCAT |
| 2025 | TAAATTTGAACAGGTAAATGGCCGGAGTTATG | 2066 | CATTTGAGTGAAAGTATCTCCCCAAGCCTAGCC |
| 2026 | TGACTGCATGAAATCATCAAGTATTCCATCTA | 2067 | CTTGGGAGCATGAGAAACGTATCCATCAGTTG |
| 2027 | CCGGAGCGGTACCTCGTTAGCCCGGAGGATAC |  |  |

*Salmonella*

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| **Newly identified spacer sequences** | | | |
| **Spacer ID** | **Sequence 5’ to 3’** | **Spacer ID** | **Sequence 5’ to 3’** |
| Ent5var3 | GACGCTTACATCTCACCGAGAGATTTTTGAGGC | NEWvar45 | CGAGCCCAAATAAGCCGCCAGGCGTCGCGAGA |
| STMB17var2 | AACAGGAACAGGAAAAAAAAGATTTGTCCGGT | NEWvar46 | CCGGTGCTAAGTGGGTGCGTCTGCGTGATTTT |
| NEWvar34 | CTTTCCGAATTAATGACGGAGTTATCGATATA | NEWvar47 | GGACTGACGGATAAATCATATATTGAAACGGG |
| NEWvar36 | CTCGGATGGTTACGCCAGATGTATGCAATTTC | NEWvar53 | GCGCTGAAGAATTACTGGTTGGCGATACGGTG |
| NEWvar37 | TGTTCTCCTATCTGCGGCAAATTAAGCTGAAT | NEWvar54 | CGTTAACTAAAACGTACAAAACAGGGAAATAA |
| NEWvar38 | AAAACTTGATACTCGATTATCGCTATCCCCTGC | NEWvar55 | GTGGCTTGACGTGACACAGGGGCTGCCGTGGT |
| NEWvar35 | AGTCGGCTTGGACGTTGACGGCACACCCTTCC | NEWvar56 | AGTTTCCCAATCTTTCGCCACGCTGGGAAATC |
| NEWvar4 | CCCTCTTTCGCCGCTACCGCAGCTAACAAGAT | NEWvar57 | GAATTTTTACGGGTGATATTTTTTCTCATTGT |
| NEWvar12 | TAGTCCATAGCCTCAGCCCGGCTTGTCATCCT | NEWvar58 | GCGTCAACGCGGTGAACCGGCGCGCCGAGGAA |
| NEWvar13 | ATTACGAGACATTGTGGAAATCCATCTACGGC | NEWvar59 | GTGTTTTCTGCCGTCCACCGCGTGGATGGACA |
| NEWvar14 | AGGCGTGCATCAATTGCTATAAAGCCGTAGTC | NEWvar60 | TGACGCTCGGTGATTCAGGGGCAACCATTGCG |
| NEWvar15 | ACTGGTTGAGAAGATCCGCCGCAGAATCAGCG | NEWvar61 | GCCAGGCCGGGATCGGTGGGGTTATCGACGAG |
| NEWvar16 | ATCACATCACGCAGATATTATCTCATTACAGC | NEWvar62 | ACGGCATCATCAACCGAGACAAGCCCCAACTC |
| NEWvar17 | CGCCTACGCCTGGGAGCTAATCCCCGACAGCA | NEWvar48 | TGCTCGGGGCATGTTTCTAAACGCCCCTCGGG |
| NEWvar18 | CCCGTTCCACGGCGAGAAAACCCCGTCCTGCG | NEWvar63 | ACCGAGAACGTTCTACCTTTGATTACCTTCCC |
| NEWvar19 | CCGTTGACGGCGAGCGCAGACCTCGGAAATAA | NEWvar64 | CACTCCGCGCCGCTGGCATCCATGTTATCGAA |
| NEWvar20 | TGCCATAGAAGAATCTGACCCTGATAACTGGC | NEWvar65 | AAAATTATCGAGGATGAATTTAAAACAGGTGC |
| NEWvar21 | GCGTCCTCGCCAGCGTCAGCCGGGTAATACAA | NEWvar66 | ATTTGCCCCTCATCTTTCGCCCTTAAGCCGGG |
| NEWvar5 | ATTTTCATCGCCAGACCAGGATCGGTGGGGTT | NEWvar67 | GCCGATATGGCTAAAACGGCGCTTGAGAACAG |
| NEWvar22 | GCCTGCGTGAAAAACAGGTTCATCAGGATGCC | NEWvar49 | GTGGTGTCCGGTCTGTCGTTCACCCCCGCAGT |
| NEWvar23 | CTCCTTGAGCAGGGGAAACCCTGCCTTTTCCA | NEWvar50 | AGCTGGAAGCCGCAGAGAAGCGCATAGCAGAA |
| NEWvar24 | GGCTGAGAAGATCGGCGGGCAAACTGCCTATG | NEWvar51 | GCATCCGCTAGCCTCACGTAAGTTAAAGTTAA |
| NEWvar25 | TTTATTCGCCGAAAGAGGGCGACATAGTTATT | NEWvar52 | GCGCGTAACGCCACGCTATCAGTCTGGAACAT |
| NEWvar26 | GTGACAACGGTCCCGGCGCTGGAAAAGGTGAA | NEWvar68 | GATGATCGTTTTTTTCGTTACGTCGCGCAAAT |
| NEWvar27 | CCAGATAGAGGCTTTAACATGAAATCAATTAC | NEWvar69 | GGTTAACCGGGGTTTTCCCCACTATTTCGC |
| NEWvar28 | GGGGAGGGTGAATTTAACGAGCTGTATAAAGC | NEWvar32 | GCTGAAGCGCCAGGATACCCTGAAACGCTACC |
| NEWvar6 | AAAAATTCGGCGCCAGCATCGCTGCGGATACT | NEWvar33 | TAACCATGGCTAAGAAAAAAACTTACAGGACT |
| NEWvar7 | GCTGGCGGTGTACTCATCGCTTTGCACGGTTC | NEWvar70 | AACAGGAACAGGAAAAAAAGATTTGTCCGGT |
| NEWvar8 | GAACGCACGTCGCACAATACGACGGTTAAAAA | Agb12 | AGCCGTTTCCGCTAAATACCCCGCAGTGATT |
| NEWvar9 | CGCGCCACGGGTAAGACCTGGGAAGAGACGAT | NEWvar72 | CGCTCGCCAATACGCGGAAAACTGTCAGCGTA |
| NEWvar10 | CTCAAGTAAACGTTAGCACCACGAATATAACC | Ken52var1 | AGCCAGAAAGTCACAAATGCGAGGAGTCAGCC |
| NEWvar11 | GGCATTGCGTGGTATCGGGTTTGCTAATATTT | GallB1var2 | AAAAAAATGCGATCGGTACTCAACCCGGCCAC |
| NEWvar29 | GTTGCACGCATTCCAGTGTGGTTTAAAAAACA | NEWvar71 | CGTTCATCGGCAGCGTCACGCAATATTGCGTGAAGAT |
| NEWvar30 | AACAACCCGCTAGTATTACAACGACTAAAAGT | NEWvar40 | ATTATGGACGACAGCTATATGAAAACGCATTG |
| NEWvar31 | CGGGCGTACACCAGAACGGCTATTCAGGCACG | NEWvar41 | GCGAGATTAAAGCGGGCTAACTATTTGTGAGA |
| NEWvar2 | GTCACTACCGAGACCGAGACCGAGACCGAGACCGAGACCGAGA | NEWvar42 | TGCGCAGATTCCGAACCGCTTACGATGAAGTG |
| NEWvar39 | AAACGGTAGTGTTTTAAAAACCGTTTCGAGGTGC | NEWvar43 | TTTGCCTGGGCTGGTTCGCCGAAAACGGCGCG |
| NEWvar3 | CGTCACTACCGAGACCGAGACCGAGACCGAGACCGAGACCGAGA | NEWvar44 | GCTGCTCTCTCACGGGGGTGGCCTTTTTTATT |