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(71) Applicant *(for all designated States except US)*: **BIO-RAD LABORATORIES, INC.** [US/US]; 1000 Alfred Nobel Drive, Hercules, California 94547 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **CHENG, Man** [CN/US]; 7025 Calvert Cir., San Ramon, California 94582 (US). **WANG, Yan** [CN/US]; 211 Juanita Way, San Francisco, California 94127 (US). **SULLIVAN, John** [US/US]; 81 Sheridan Road, Oakland, California 94618 (US).

(74) Agents: **HINSCH, Matthew E.** et al.; Kilpatrick Townsend & Stockton LLP, Two Embarcadero Center, Eighth Floor, San Francisco, California 94111-3834 (US).

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(54) **Title**: SSO7-POLYMERASE CONJUGATES WITH DECREASED NON-SPECIFIC ACTIVITY

Figure 1

Alignment result of Sso7d variants

CLUSTAL 2.1 multiple sequence alignment

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Sso7d/Ssh7A/SsoP2      MATVKFKYKGEEKEVDISKIKKVWRVGKMISFTYDEGGGKTGRGAVSEKDAPKELLQMLE 60
Ssh7b                  MVTVKFKYKGEEKEVDTSKIKKVWRVGKMISFTYDEGGGKTGRGAVSEKDAPKELLQMLE 60
Sto7e                  MVTVKFKYKGEEKEVDISKIKKVWRVGKMISFTYDDNG-KTGRGAVSEKDAPKELLQMLE 59
Sac7d                  MVKVKFKYKGEEKEVDTSKIKKVWRVGKMVSFTYDDNG-KTGRGAVSEKDAPKELLDMLA 59
Sac7e                  MAKVRFKYKGEEKEVDTSKIKKVWRVGKMVSFTYDDNG-KTGRGAVSEKDAPKELMDMLA 59
                       *..*:********** **********:*****:.* ****************::**

Sso7d/Ssh7A/SsoP2      KQ-KK-- 64
Ssh7b                  KQ-KK-- 64
Sto7e                  KSGKK-- 64
Sac7d                  RAEREKK 66
Sac7e                  RAEKKK- 65
                       :  ::
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Bolded and underlined K = K28

Bolded and underlined R = R43

(57) **Abstract**: Improved Sso7-polymerase conjugate proteins are provided. The present invention provides for an Ss07 polymerase conjugate protein comprising an Ss07 domain linked to a polymerase; wherein: an amino acid of the Ss07 domain corresponding to K28 of SEQ 10 NO:2 is not lysine (K); and/or an amino acid of the Ss07 domain corresponding to R43 of SEQ ID NO:2 is not arginine (R), wherein the conjugate protein has a decreased non-specific amplification activity compared to an otherwise identical control conjugate protein in which the amino acid of the Ss07 domain corresponding to K28 of SEQ ID NO:2 is lysine (K) and the amino acid of the Ss07 domain corresponding to R43 of SEQ ID NO:2 is arginine (R).