Supplementary Material

**Table S1 |** Materials that are required for the creation and screening of *Pgt* mutant libraries.

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| Inoculations | *Pgt* wildtype or mutant urediniospores |
| Methanesulfonic acid ethyl ester (Sigma-Aldrich catalogue no. M0880) |
| EMS inactivation solution: 0.1 M NaOH + 10 % w/v Na2S2O3 |
| 30 ml NalgeneTM Oakridge tubes (ThermoFisher Scientific catalogue no. 3119-0030PK) |
| 0.2 g/l Maleic hydrazide 0.2 g/l solution (Sigma-Aldrich catalogue no.D119806) |
| Tween20 |
| Grade 201 Whatman cellulose filter paper (GE healthcare Lifesciences, Europe) |
| Sterile H2O |
| 12 day-old Chinese Spring and *Sr* introgression line and seedlings in 9 cm pots |
| HS ENGTM mini airbrush compressor AS18- 2TM (Oil-free) |
| Siphon feed airbrush single action air brush kit 0.8 mm spray guns |
| Class 2 biological safety cabinet |
| 3M™ Novec™ 7000 Engineered Fluid (Sigma-Aldrich catalogue no. SHH0001) |
| Clear cellulose film cross bottom bags 180 mm x 300 (Helmut Schmidt Verpackungsfolien GmbH) |
| Biological waste bags |
| 70 % Ethanol |
| Elastic bands |
| Water bath set at 45 oC |
| Glasshouse/ controlled environment growth room with temperature set at 21 – 23 oC/ 15 oC for 16 h/ 8 h temperature and 16 h fluorescent light. |
| Phenotyping, pustule sampling, spore harvesting and storage | Wheat stem rust phenotyping scale (Stakman et al. 1962) |
| Fine point scissors 12.5 cm |
| 2 ml centrifuge tubes |
| 1.5 ml Nalgene™ general long-term storage cryogenic tubes (ThermoFisher catalogue no. 5000-1020) |
| -80 oC freezer |
| Fine point scissors 12.5 cm |
| Cotton wool |
| DNA extractions | Mortar and pestle |
| High molecular weight DNA extraction protocol (Nagar and Schwessinger, 2018) |
| 1 % agarose gel |
| Lambda DNA *Hind*III Digest (Sigma Aldrich catalogue no. D9780) |
| ThermoFisher Scientific NanoDrop™ 2000 spectrophotometer |
| Water bath set at 50 oC |
| Proteinase K 20 mg/ml ThermoFisher Scientific (catalogue **no.**AM2548) |
| Rnase A 1 mg/ml ThermoFisher Scientific (catalogue **no.**AM2269) |
| CTAB |
| PVPP (insoluble P6755) |
| Glucose:sucrose, Merck (Catalogue **no.**s G8270 and S7903) |
| Sterile ddH2O |
| Chloroform:isoamyl alcohol (24:1) |