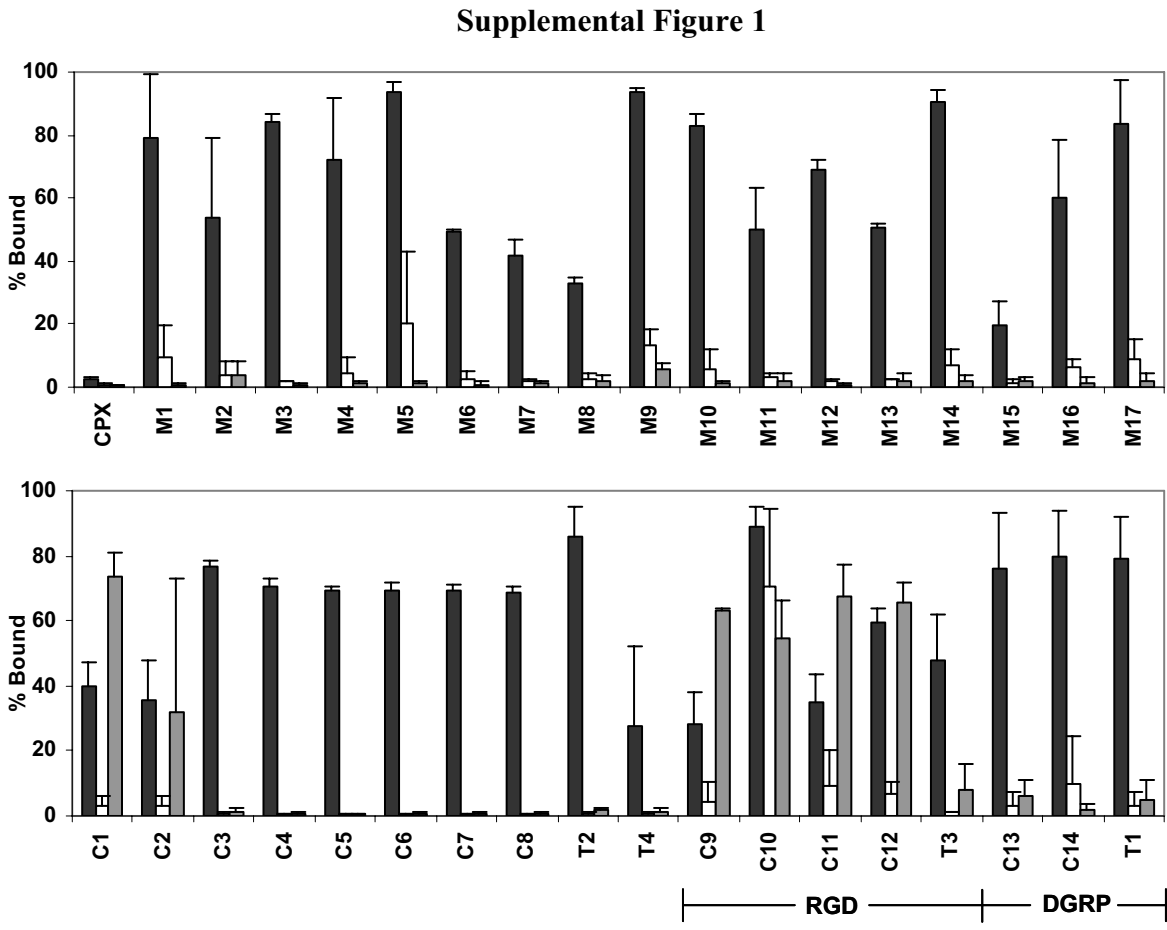
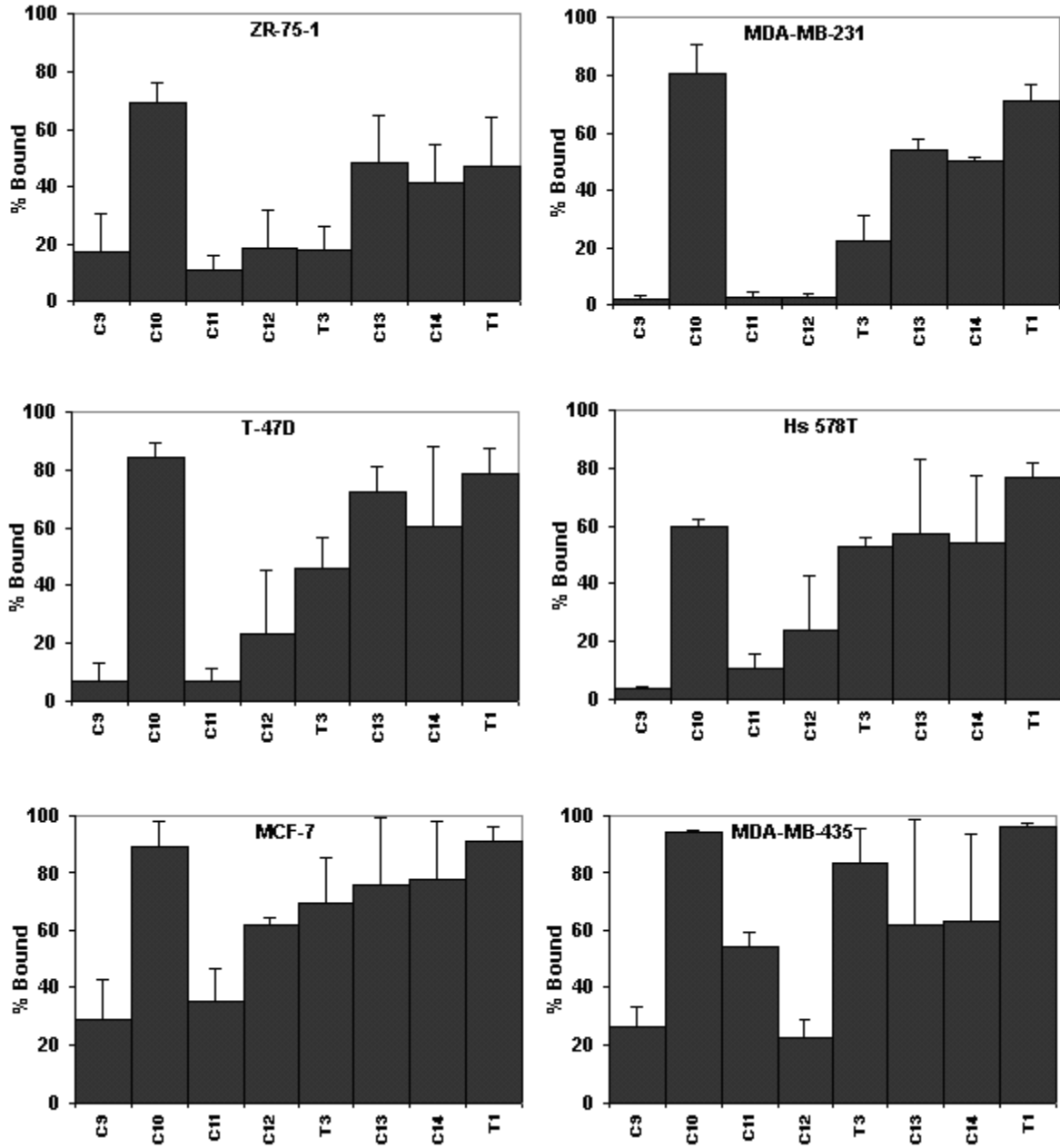


**Supplemental Figure 1.** Specificity of tumor cell binding peptides measured using flow cytometry. (A, B) Bacteria selected against MDA-MB-231 (M peptides), MCF-7 (C peptides), and T47-D (T peptides) breast tumor cells (black bars) exhibit high specificity when compared to normal MCF-10A (white bars) and HMEC cells (grey bars). Percent bound indicates the number of tumor cells with bacteria bound with error bars representing duplicate samples assayed on separate days.



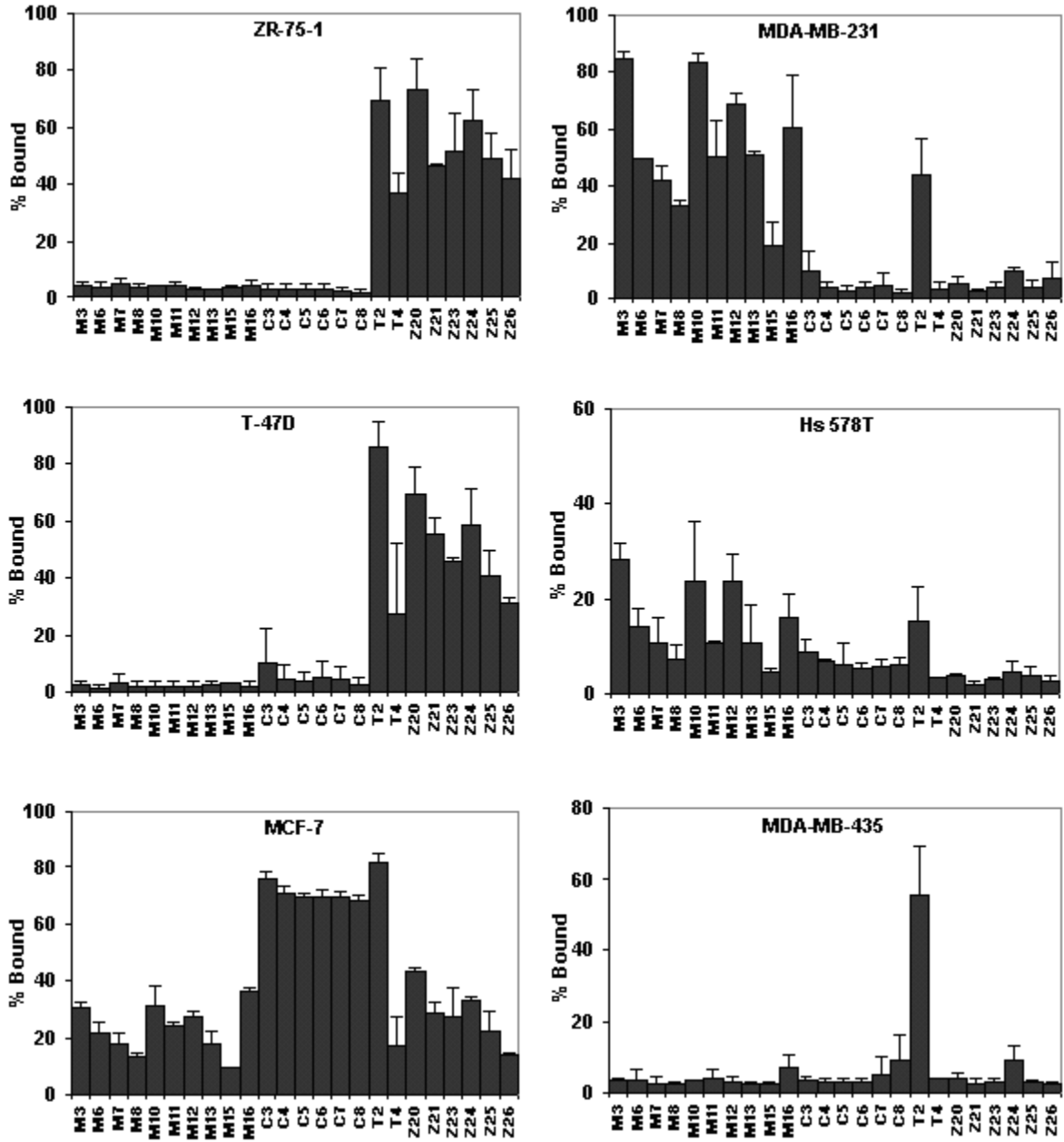
**Supplemental Figure 2.** Profiling of six tumor cell lines with bacteria expressing selected RGD/DGRP motifs. Bacteria expressing peptides containing the RGD motif (C9, C10, C11, C12, T3) or the DGRP (C13, C14, T1) showed similar binding patterns for ZR-75-1, T47-D, MCF-7, MDA-MB-231, Hs578T and MDA-MB-435. Percent bound indicates the number of tumor cells with bacteria bound with error bars representing duplicate samples assayed on separate days.

Supplemental Figure 2



**Supplemental Figure 3.** Profiling of six tumor cell lines with selected, tumor-specific bacteria differentiate basal from luminal subtypes. Bacteria expressing peptides selected against MDA-MB-231 (M peptides), MCF-7 (C peptides), T47-D (T peptides), and ZR-75-1 (Z peptides, Dane *et al*) breast tumor cells showed different cross-reactivity patterns when incubated with ZR-75-1, T47-D, MCF-7, and MDA-MB-231. A distinct pattern was seen for these peptides incubated with cell lines Hs578T and MDA-MB-435, not used in the selections. Percent bound indicates the number of tumor cells with bacteria bound with error bars representing duplicate samples assayed on separate days.

Supplemental Figure 3



**Supplemental Figure 4.** Microparticles labeled with pepC3 bind MCF-7 cells specifically, and pepC3 appears to bind to a receptor normally expressed internally in breast cells. (A) Unlabeled microparticles or particles labeled with an irrelevant pepT7 do not bind to the surface of MCF-7 (black bars), MCF-10A (white bars), or HMEC (grey bars), while particles labeled with pepC3 bind specifically to the surface of MCF-7 cells. (B) Confocal images of membrane-stained MCF-7 cells indicate that microparticles labeled with pepC3 are not internalizing into cells. Large image shows XY axis with corresponding XZ and YZ planes. (C) Cells stained with peptide probes (2  $\mu$ M) for surface markers (top panels) or internal markers (bottom panels) are evaluated using flow cytometry. Breast cancer cells (MCF-7) and normal cells (MCF-10A and HMEC) were labeled with a red fluorescent probe without peptide (SA-PE, red histograms), with a negative control pepT7 (green histograms) or with tumor specific pepC3 (blue histograms). PepC3 bound the surface of only MCF-7 cancer cells, while staining both tumor and normal cells that were permeabilized to gain access to internal receptors.

### Supplemental Figure 4

